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# DR·GUNN'S HOUSEHOLD PHYSICIAN





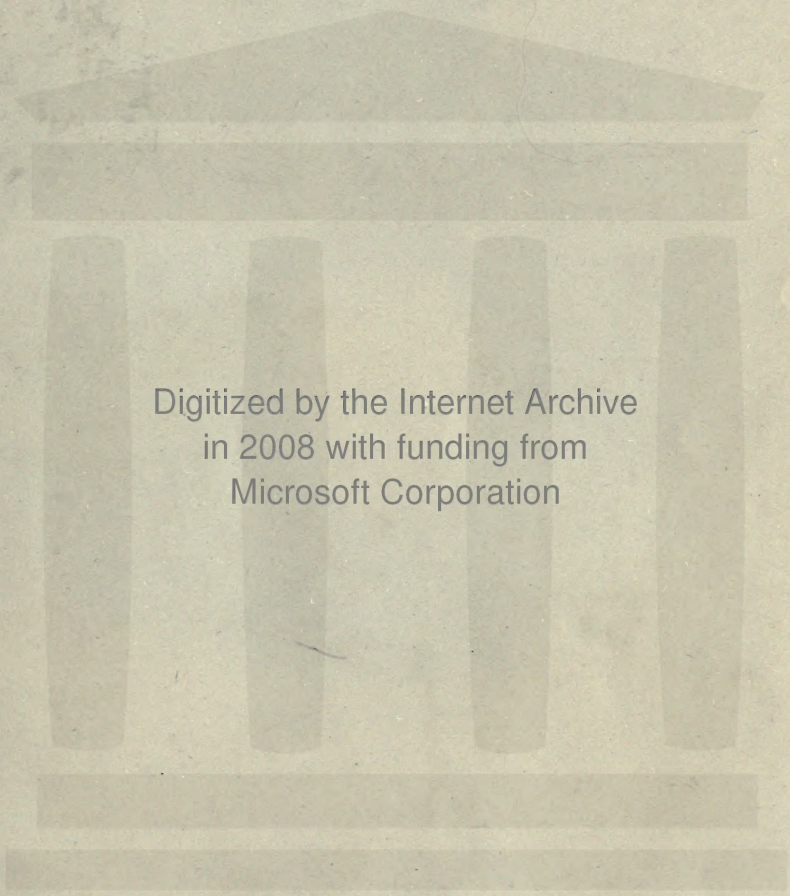
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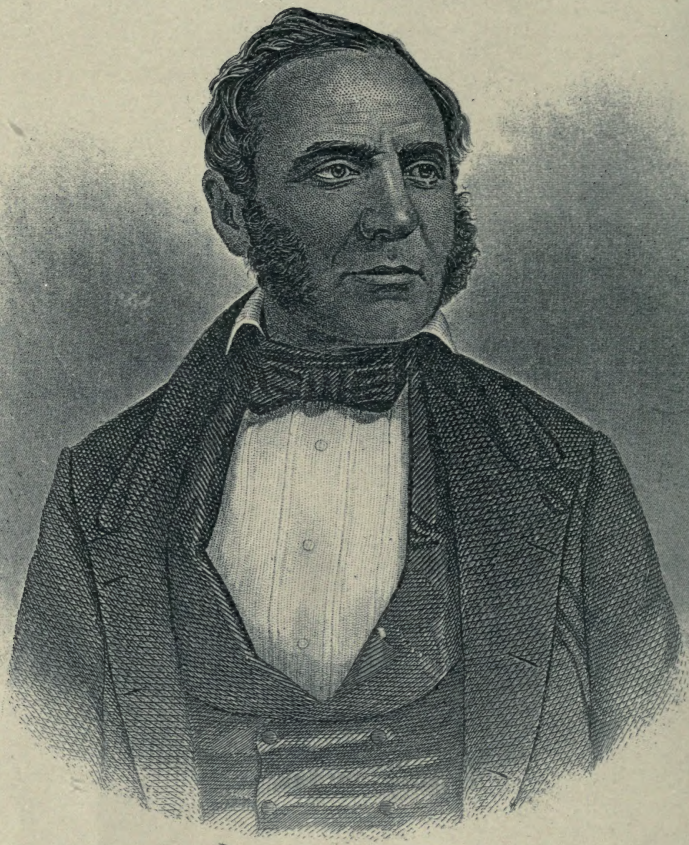
*by*

**Willard G. Oxtoby**



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*R. O. Gunn M.D.*

Author of Gunn's Domestic Medicine or Poor Mans Friend.

*Two Hundred and Thirtieth Edition, Revised and Enlarged, 1901.*

# GUNN'S

# HOUSEHOLD PHYSICIAN

OR

# HOME BOOK OF HEALTH

*Forming a COMPLETE HOUSEHOLD GUIDE. Giving many valuable suggestions for avoiding disease and prolonging life, with plain directions in cases of emergency, and pointing out in familiar language the causes, symptoms, treatment and cure of diseases incident to MEN, WOMEN and CHILDREN, with the simplest and best remedies; presenting a*

## MANUAL FOR NURSING THE SICK

AND DESCRIBING MINUTELY THE PROPERTIES AND USES OF HUNDREDS OF WELL-KNOWN MEDICINAL PLANTS

**By John C. Gunn, M.D.,**

*Author of "Gunn's Domestic Medicine."*

WITH SUPPLEMENTARY TREATISES ON

ANATOMY, PHYSIOLOGY AND HYGIENE

ON

DOMESTIC AND SANITARY ECONOMY

AND ON PHYSICAL CULTURE AND DEVELOPMENT

**Newly Illustrated**

THE SAALFIELD PUBLISHING CO.

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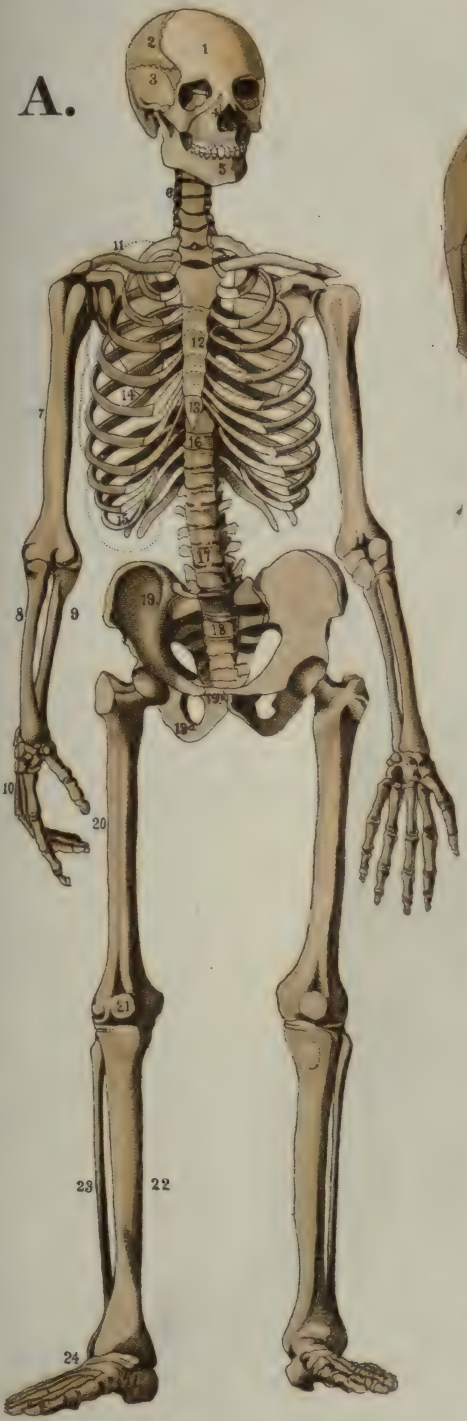
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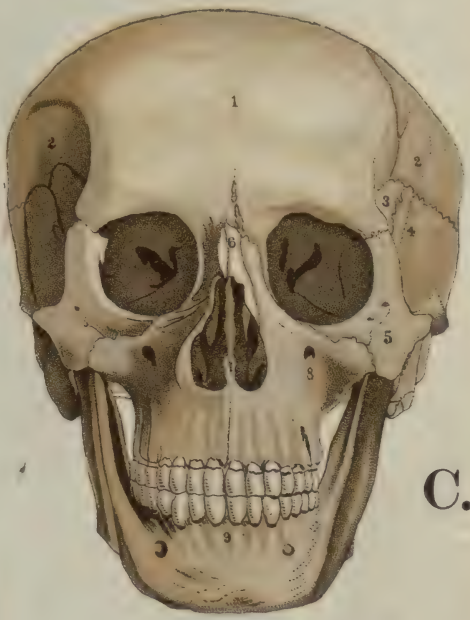
OF THE

# HUMAN BODY AND THEIR CURE.

70

# THE BONES.




**C—The skull, as seen from the front.**

1. The frontal bone.
2. The parietal bones.
3. The wedge-shaped bone.
4. The temporal bones.
5. The cheek-bones.
6. The nasal bones.
7. The septum of the nose.
8. Facial part of the upper jaw.
9. The lower jaw.

**A—The skeleton, as seen from the front.**

1. The frontal bone.
2. The parietal bones.
3. The temporal bone.
4. The bone of the upper jaw.
5. The bone of the lower jaw.
6. The cervical vertebrae.
7. The bone of the upper arm.
8. The radius.
9. The ulna.
10. The bones of the hand.
11. The collar-bone.
12. The breast-bone.
13. The xiphisternum.
14. The true ribs.
15. The false ribs.
16. The thoracic vertebrae.
17. The lower vertebrae of the spine.
18. The sacrum. } The pelvis.
19. *a*. The haunch-bone. } The pelvis.
19. *b*. The pubic-bone. } The pelvis.
20. The thigh-bone.
21. The knee-pane.
22. The shin-bone.
23. The splint-bone.
24. The bones of the foot.

# EDITOR'S PREFACE.

## 1901.

NEARLY fifty years have elapsed since the first edition of this work made its appearance. During these years it has passed through two hundred editions. During these same years, medicine has advanced with gigantic strides. The great fields thrown open by science — microscopy, chemistry, photography, electricity, and many others — have found their products most practically utilized in medicine. The medical profession is also proud of possessing a large percentage of workers in these scientific fields.

To bring the present edition into accord with modern medicine, we have not hesitated to consult the best works upon all medical subjects; we have given the consulter of the work the benefit of the best of medical literature as well as of our own experience, in a language as free from technical terms, as is consistent, on the one hand with accuracy, on the other, with making ourselves comprehended by the average reader.

There are some medical subjects which works of this nature, often, from a false modesty, shun or at most mention in a vague, evasive manner. The sooner the whole world knows the truth about these subjects, especially venereal diseases, the sooner it will be free from them and the tremendous misery and suffering which they entail. The question may arise, "Why should the innocent be informed upon these subjects?" Because, from a lack of knowledge, there are many, many innocent sufferers, is a sufficient answer.

In nothing is a little knowledge more dangerous than in medicine. We would warn our readers of the dangers of observing themselves too closely, of looking for deviations from normal health and of magnifying such deviations. Medical students, often early in their careers, pass through a state of worry because of too close observation of themselves, but upon acquiring fuller knowledge learn to ignore these little deviations.

We have given all the commonest symptoms which may be signs of a given disease, yet one or many of these may be lacking with the given disease present: for example, headache, backache, and vomiting are common symptoms of small-pox, yet we have seen typical small-pox without being accompanied with these common symptoms. On the other hand, many of these same symptoms may be common to several diseases: for example, swelling of the feet is a symptom which suggests disease of a number of organs, especially of the heart, liver, or kidneys. The swelling is the same in each case, but obviously the treatment must be somewhat different. To determine the location of the disease in such a case is not always easy for even the trained physician; the folly of attempting to teach the reader to make such distinctions, in space so limited, is evident.

The object of this book is not to make doctors of everybody, for the doctor has a broad and legitimate field, but to show what diseases are curable and what ones are not; to indicate when the doctor's services are required and when they are not; to teach one to retain man's natural condition — health; to train one to treat minor abnormal conditions, and finally to warn one of the dangers of quackery and of patent medicines.

# PREFACE.

In presenting to the public the Family Physician, it has been the object of our humble labors to condense into a cheap, convenient form, a useful Family Book for the poor and the afflicted, in plain language, free from medical terms. At the same time, not to confine our efforts to medicine alone, we have endeavored to present a portion of that useful knowledge which leads to eternal life, and soothes the human spirit amid its worldly afflictions. The general lack of knowledge respecting medicine and the laws of life, and health, and disease, renders people capable of being made the easy prey of the villainous quack; therefore, a general spread of suitable knowledge among the people upon these subjects, is the only possible and sure means of effectually removing from society this interminate and wide-spread evil.

The honest fears of some that the physician should alone prescribe, is a mistake. There is not that strangeness and marvelousness about medicine which many suppose; the administration is to be guided by good judgment and common sense, necessary qualities, which all physicians, and young practitioners generally, do not always possess. No knowledge is worth any thing unless founded on *truth* and experience; and a long practice in my profession has fully convinced me that more favorable results take place from simple remedies, and good nursing, than from eminent physicians who quarrel with each other for pre-eminence in fame, instead of endeavoring to enlighten and advance the happiness of the human family. How many bring disgrace upon their profession by sustaining the dark shadows of ancient superstitions, instead of advocating the improvements of modern times. The chief object of their works is the rehearsal of former errors. Then let me, in plain language, tell you that the science of medicine is almost the only one characterized by uncertainty. It appears to me but fair to enlighten, as far as I can, the public mind on this important subject; for every one is interested in the

prolongation of life and health, and should be, in a country like ours, allowed the privilege of thinking for himself, if he does not choose to act. It is natural enough for the people to look to the medical profession for advice, and their services at times are very desirable, if they are well informed in their business. But that they should have an exclusive control, I can not admit. I respect the faculty, and I hope that I justly appreciate their important labors, and their kindness in recommending my former work—"*Gunn's Domestic Medicine*"—but I must honestly say, for the preservation of health and life, private individuals have often contributed information of the most valuable character, solely derived from unstudied, or, at least, from unprofessional experience. And from the consideration that it is my duty, through the blessing of God, to afford to the sick and afflicted such seasonable advice, I have completed this Family Book. I am not attached to monopolies of any kind, and less than any to that which confines to a particular order that information which teaches how to relieve sickness and pain.

Having indulged these prefatory remarks, I would mention, that in preparing this Family Work for the public, I have examined with great care a large number of late medical books, and given nearly every new remedy of any value in the simplest language, adapted expressly to the use of families. This examination, together with my own experience, during a long series of years, in the active duties of my profession, enables me to offer a book to be relied upon, and which I am confident will not disappoint the expectations of my old friends and patrons.

The increasing demand for my old book, and the many favorable notices from the press, in all parts of the country, have cheered me in my past labors, and encouraged me to enter upon a new work with increased zeal and energy.

THE AUTHOR.

# GUNN'S

# FAMILY PHYSICIAN.

## INTRODUCTION.

Disease is not unfrequently the means of leading to the path of Virtue; it has a salutary operation on our moral constitution, and prepares us for the rewards of obedience. Death is a departure from the present scene; and we have good reason to conclude that with respect to those who have acted virtuously here, it is a transition to a more exalted state of being. No virtuous person, then, has reason to complain; the vicious ought to direct their murmurs and complaints not against the Author of their existence and their enjoyments, but against their own follies and perversity, in often disobeying the dictates of reason and conscience, and so forfeiting that happiness and health which the bountiful Creator has placed within their reach. When the sun of prosperity beams upon us, and our cup of enjoyment is full, we are too much disposed to forget the fountain from whence all our blessings flow. Hence God chastens us in mercy, to wean our affections from the world, to awaken us to some neglected duty, to make us look to himself, become partakers of His holiness, and meet for a happy immortality. "Whom the Lord loveth He chasteneth, and if we endure chastening, God dealeth with us as with sons and daughters." Often have the subjects of God's moral government had cause to say, "it is good for us that we have been afflicted." We can not always avoid trials; but we may always apply them to wise purposes as instruments of spiritual education, and means of preparing us for future glory. Pride and insensibility may affect to disregard afflictions; it is the province of wisdom to improve them.

They are afflicted by our Heavenly Father for a gracious and wise purpose, and that purpose it should be our constant aim to promote. The excellence of the end to be attained may reconcile us to the means employed to bring it about. The weary pilgrim travels cheerfully through a thorny path, when he knows it is short, and will soon conduct him to the object of all his desires and all his hopes; and shall

not the Christian bear with steady fortitude and pious resignation the transitory ills of life, seeing that they are the steps by which he is ascending to the mansions in our Father's house? Our light afflictions, be they what they may, which are but for a moment, work for us "a far more exceeding and eternal weight of glory." Let man regard this world merely as a preparatory stage to a future and an eternal state of existence. Let him consider his misfortunes, suffer ings, and miseries, as intended to prepare him the better for a world of undying glory and happiness; and let him persevere in a course of virtue and usefulness, in contempt of the malignity of his enemies and the storms of adversity that beat around him, for all have their trials and disappointments, and he will infallibly attain to that perfection and happiness hereafter, which should constitute the only true end and aim of all human exertion and pursuit. We should reflect for what purposes we were born, and through the whole of life look at its end. Consider, when sickness and affliction come, in what we will put our trust. Not in medicine, for that often disappoints us; not in the physician, for however able and skillful he may be, he is only the instrument in the hands of an overruling Providence, and often fails; not in the bubble of worldly vanity—it will be broken; not in worldly pleasures—they will be gone; not in great connections—they can not save you in death; not in wealth—you can not carry it with you; not in rank—in the grave there is no distinction; not in the recollection of a life spent in a giddy conformity to the silly fashions of a thoughtless and wicked world, but in that of a life spent soberly, righteously, and godly, in this present world.

Disappointed hopes, failure of all worldly calculations, constitute the history of mankind. We can not violate the will, expressed or understood, of Heaven, and be happy. We can not sinfully indulge a single passion or pleasure and not be disappointed. The spiritual and moral laws which regulate our lives are as constant and invariable as any to be found in matter. How many would have at this time been living had they not enlisted every hope, thought, and energy in aiming at power, position, and wealth, and in indulging the pleasures of vice and immorality, the failure of which involved them and destroyed their health! "The spirits of the wise sit in the clouds and mock us." All that we bargain for at the outset of life, Providence frequently grants us, and that often for an instant before we quit it. Riches, honors, and the desires of the heart are often obtained, and the dream of happiness apparently realized with lands and increasing possessions. Money comes in abundance; the mansion of splendor is built; child after child promises to secure that which the founder toiled for, in the hope of dignity, and a proud aristocracy, and a name. Then come

as if to complete the fabric and to insure the victory, honors, titles, and a retinue of admiring and false friends, who smile in prosperity, but know you not in adversity. All is gained—nothing is wanting. "Soul, take thy ease"—and yet nothing is acquired. The gift melts in the grasp—the joy passes away in the possession, with the foot on the topmost step of the ladder. Ambition is satisfied, but Providence is revenged. All that the man could ask is given; but to show how vain, how foolish are human aspirations, how less than childish our misdirected aims, how many thousands live to see their property squandered, their houses and lands in the hands of strangers, their children, one by one, removed by death, or cast upon the world wanderers and penniless. Is there no lesson here? These facts may be illustrated in every age and in every clime. The daring and profligate ambition of Napoleon is but a more dazzling example of the same success, and the like terrible defeat and disappointment. Where are the kings whom a breath set up and kept in power? Where is the empire which conquered Europe and defied the world? The narrowest grave of the most distant island received the body of the man who found the earth not large enough for his desires. Bonaparte made known to the world how much man may accomplish, if he will. God in him exhibited how little all that the godless can accomplish is worth, even when all is obtained.

But happiness is the chief object for which man labors, and yet how seldom does he pause in the pursuit to consider wherein it consists, and how he may best obtain it. The drunkard, and the glutton, and the degraded libertine, look for happiness in these sensual indulgences, and while gratifying them, quail beneath the open gaze of virtue, and acknowledge often, when too late, that those pleasures are of short duration, and cloy by repetition. Behold the ambitious man who tramples on the blood of thousands, through every rule of justice, to gain a world! What streams of blood have been shed to gratify his insatiate ambition! How many thousands and millions have fallen beneath the mighty sword of the warrior, and been left lying in dreamless sleep upon the field of battle, merely to gain for him the evanescent wreath of fame, and to entomb him in a splendid sepulcher, though unconscious of its beauty and its grandeur! The poor beggar finds a grave as well as the great man. They are both destined to be food for loathsome worms; and the plowboy, as he passes by their graves, will whistle the requiem to the reposing ashes of their greatness. While the living conqueror turns miserable from his conquest, because he finds not that for which he toiled, how many look for happiness in wealth, and when it is obtained, the golden vision of their hopes passes like a sunbeam; gray hairs and the winter of old

age steal quickly upon them, and they look with tearful eyes and sorrowing heart, because they feel that death will soon break the chain which binds them to life. This insane and insatiable passion for accumulation, ever ready, when circumstances favor it, to seize upon the mind, is that "love of money which is the root of all evil," that "covetousness which is idolatry." It springs from an undue and idolatrous estimate of the value of property.

Many think that nothing will do for them, or for their children, but wealth; not a good character, not well trained and well exerted faculties, not virtue, not the hope of Heaven—nothing but wealth. It is their god, and the god of their families. Their sons are growing up to the same worship of it, and to an equally baneful reliance upon it for the future; they are rushing into expenses which the divided property of their father's house will not enable them to sustain; and they are preparing to be, in turn and from necessity, slaves to the same idol. How truly is it written that "they that will be rich fall into temptation and a snare, and into many foolish and hurtful lusts, which drown men in destruction and perdition!"

There is no need that they should be rich; but they will be rich. All the noblest functions of life may be discharged without wealth; all its highest honors obtained, all its purest pleasures enjoyed; yet this is not enough. Disappoint a man of wealth, and he mourns as if the highest end of life was defeated. Strip him of this—and this gone, all is gone! And I shall point to no unheard-of experience when I say, he had rather die than live. Many who are enjoying the blessings of health are dissatisfied—many from disappointed love, some from ungrateful friends; others from unkind relations, or the rich man's arrogance, become weary of such society, and, broken in spirit, seek among strangers a home and a resting-place, and spend the remnant of life, with melancholy hearts, toiling from day to day for a miserable support, and not unfrequently without a shelter in hours of sickness or affliction.

See the poor Indian, who turns from the busy scenes of the white man, and looks for happiness in the wilderness, amid his native hills, seeking a precarious pittance in the labors of the chase. He lives the constant victim of some groundless superstition; he is startled at the rustling of a leaf, and hears the voice of the Great Spirit in every whistling wind. And even the man who aims at moral improvement, finds the powers he would dedicate to God, alloyed by the temptations and trials of a sinful world. Then let him who would secure that portion of happiness which still remains to mortals, lean on superhuman power; supplicate the aid of Him who said, "I will not break the bruised reed, or quench the smoking flax"—bearing the ills of life

with manly fortitude, grateful for what is given him by God, who knows best what we need, and watching the approach of death as the signal which calls him from a troubled conflict!

How many countless thousands submit to the foul thralldom of the fiend intemperance! Bound in his chains, many of the mightiest of the sons of men have fallen; many on whom the heart has rested with idolizing fondness, and whom we have loved with all their failings, and to whom we have clung to the last, have wandered from the sure and upright path of sober moderation. How many haggard looks do we behold in those we have known in better or more prosperous days, whose looks betray the struggling pride that scorns to solicit; whose poor and ragged children speak, in language not to be mistaken, their withered hopes!

There are many circumstances connected with intemperance that should be known. The shock the brain often receives from the use of spirituous liquors, produces the most horrible consequences; sudden death, or apoplexy, takes place. The brain is a complex machine, and it is impossible for the most distinguished physician to say where eccentricity ends, and where insanity begins. A man may mingle with his fellow-men, pursue the routine of ordinary cares and duties, so as to escape observation or remark—and yet may not be a perfectly sane man. Some delicate string of the mazy instrument may be shattered—and you have the strange response of monomania. Though no one string has snapped, each string may have been strained beyond its proper tension; and the whole instrument yields to the soul's action, fitful, irregular, discordant music—though not so strikingly varied from the ordinary sounds occasion brings forth, when temporary passion or some sudden impulse lends its aid—it shows to an experienced observer the dire and latent cause. Reason teaches us that such may be—experience, the record of man's frailties, and close observation teach us that such has been the fact. And it requires no sophistical argument to prove that which is the result of every day's observation, that thousands put into their mouths an enemy to steal away their brains. The internal changes, and the deterioration of the functions of the animal economy in the habitual drinker of ardent spirits, is not confined to the brain, but changes take place in the stomach, liver, heart, lungs, and the functions of each respectively. And yet, deplorable infatuation! the misguided creature often alleges as an excuse for his tippling or daily use of ardent spirits that he suffers in some one of those organs, and gets momentary relief in this way. But what a relief! A pleasurable moment, to be repaid by hours, and days, and weeks of disease!

These remarks will show you that if you desire to arrive at old age

in the enjoyment of health, it can only be done by a rigid course of abstinence. We shall find, by looking over the biographies of the great men of every age, that those who have possessed the clearest and most powerful minds, neither drank spirits, nor indulged in the pleasures of the table. Sir Isaac Newton, John Locke, Dr. Franklin, John Wesley, Sir William Jones, John Fletcher, and President Edwards, furnish striking illustrations of this truth.

The mind of man is like the fluctuating sea. It is never at rest. View the nature of man, and the objects by which he is surrounded; his immortal capacity forever seeking, yet forever refusing to be filled from earthly sources. Amid this tumult of the mind, this constant restlessness, this fever of disappointment, we shall frequently point out to our readers in this work the potent influence which bodily infirmity exerts over the disposition and intellect, and the necessity and importance of the tranquillity of the mind, and a proper regulation of all the passions, for the preservation of health. The faculties with which our Creator has endowed us, both physical and intellectual, are so dependent upon exercise for their proper development, that action and industry must be regarded as among the primary duties of accountable man. Exertion is connected with success and renown. Such is our constitution, that according to our usual train of thinking, where there is no exertion, there can be neither honor nor reward. Progress in moral and intellectual excellence is our duty, our honor, and our interest. We come into the world feeble in body and in mind, but with the seeds of improvement in both; and these seeds grow according to the cultivation they receive from exercise. The body grows in stature and in strength, and the mind gradually expands. But exercise is requisite to the development both of our corporeal and mental capacities. In the course of years, indeed, the body grows—but without exercise it becomes corpulent, feeble, and inactive; and the mind, wholly undisciplined, remains in a weak and infantile state. That exercise which is requisite in order to bodily health and vigor, and to the evolution of our intellectual and moral powers, is not only the chief means of our improvement, but also the main source of our happiness. Without exercise of body and mind, there can be no happiness or health. There is nothing like business, for enabling us to get through our weary existence. The intellect can not sustain its sunshine flight long; the flagging wings drop to the earth. Pleasure palls, and idleness gathers rags. But business gets over the hours without counting them. We may be very tired at the end, still it has brought the day to a close sooner than any thing else. Never be idle; exercise improves the health, and employs the mind. Our years are but few, and every minute of indo

lence, by taking a grain from the heap, shortens our span. If we knew but a day remained for us to live, and we had some great work which we could just finish in that period, with what industry would we labor to complete it! We would strain every nerve, and grudge every second, watching the sun's decline with trembling and fear. Yet life is but a day, and we all have more than enough work to perform. If we would finish our task, we should lose not a moment. The river of time rolls by without ceasing; and on its bosom we are hastening to the great ocean of eternity! It will not wait for us, when repenting of our idleness. We may desire to labor, but from its cold waters will remorselessly come a voice, saying, "It is TOO LATE." Ay! it will soon be too late—"for the night cometh when no man can work."

Idleness will render you petulant, and disappointment ruffles the smoothest temper. If we would eradicate the thorns that grow in the path of life, we should guard, with unremitting vigilance, the passions—controlled, they are the genial heat that warms us along the way of life; ungoverned, they are consuming fires. But the most important truth can not be too early learned—the great essential to our happiness is, the resolution to perform our duty to God, as well as we are able; and when this resolution is deeply fixed, every action and every pursuit brings satisfaction to the mind. Then, if the prospects in this life are so precarious—if the pleasures of this life are so transient—if from mutability human things are void of substance, and no confidence can be reposed in them, to what resource must we apply to become possessed of some secure dependence, to support and buoy us up in the hour of sorrow and affliction? To whom shall we fly for comfort in the hour of trouble? Nature and reason reveal the healing consolation; it is a pure, invaluable gem, which shines brightest in adversity. It is the gem Religion! that beacon which lights us to another and a better world; it serves as a consolation when mankind desert us, and the cheerless hand of sorrow is placed upon our brow. It is a friendly attribute—a glorious yet modest flower, the seed of which should be engrafted, nourished, and protected in the infant's breast, that in their later years it may prove a rich and glorious harvest, serving in their declining days as a comfort and support. How often have I witnessed, that in the youthful breast the valuable shoot had just begun to expand, but for want of care and necessary attention, or some wicked example and depravity of mind, the tender plant was blasted by the contagion, and left in its location a vacant spot, to be usurped by depravity and vice!

Perhaps, gentle reader, before thou hast got thus far with me, thou hast more than once sighed at the sorrows and trials that man has to

encounter. I have, however, endeavored to catch and embody some of them for your consideration, before the evil days come, and the years draw nigh, when you shall say, "I have no pleasure in them." And now, before I close this subject, let me point you to Religion, that pure, bright, sacred gift of God, whose joys you must experience to understand its magic influence. It calms the ruffled scenes of life, and makes them glide peacefully away. It soothes the mind in its last hours, and gives that sweet tranquillity and assurance of the passport of the soul to an endless life of happiness and bliss.

# REMARKS.

HEAVEN gave every man time for some useful purpose, and a man's life must have been badly spent, if there are no green spots in the wilderness of the past, to which he can look back with consolation and pleasure. How many live in this world as useless as if they had the right to pass through life as a mere cipher, and leave the world without performing a single action of kindness to their fellow-creatures, or leaving a single trace by which their memories may be perpetuated to posterity, either for their usefulness, their virtues, or their charities!

How many deliberate or think what they will do, and reach the close of their earthly pilgrimage, without coming to any determination, either of profit to themselves or to others. Miserable must this reflection be when such a man, in the decline of life, considers how unprofitable he has been to himself, to his fellow-creatures, and above all to his *Creator*. "Thou unfaithful steward"—no sweet thoughts to soothe the troubled spirit's repose amid the busy scenes of life, and the pleasures of the world; he has forgotten the important lessons of *Truth*, that life is but the preparatory state of an endless existence, and that he is to render an account for his stewardship here. For that wisdom that does not enter into the heart, is of but little value, for the real use of knowledge is to make us better, not to make us greater; and whosoever learns much without becoming more pious and humble, makes a bad use of his learning; and we should bear in mind this important instruction, where there is no piety either in man or woman, there is no security for virtue, and no power to resist and overcome those evil passions and propensities which destroy our peace, and our health, and are constantly, more or less, the great sources of disease, both mentally and physically.

Then you will at once perceive how essential and important to health is the tranquillity of the mind, and a proper regulation of all the PASSIONS, for they may be properly considered the moral thermometer, that regulate the system, and hold the most powerful influence over the general health. And I may as well tell you here, as anywhere else, for it is the truth, that much medicine is taken, and many ineffectual attempts made, to cure diseases which have their origin in

a disordered mind. And I have no doubt that thousands are killed by dosing and drugging every year, instead of assisting nature, by exercise, proper diet, change of climate, and rest of mind, which afford relaxation from the cares of business for a time; the mind requires rest, as well as the body, and without it, it is impossible to enjoy health.

I have often regretted that physicians did not attend more strictly to this matter, and thereby save many, by timely advice, from a broken constitution, and, not unfrequently, a lingering and miserable existence. Unfortunately, however, physicians are paid more for their visits and medicines, than for their advice in these matters.

That the mind has a powerful influence on health, is well known to medical men, and in fact to all persons of observation; and this is the reason why physicians encourage their patients. Not unfrequently, mental emotions, such as fear, grief, or any great anxiety of mind, have turned the hair gray, in a single night. Man is more or less the creature of passion, prejudice, habit, and education. The heart, alas! despite of the stern philosophy which justice bids us exercise, invariably warps the understanding; even when most disposed to place reliance on the impartiality of our discriminating faculties, the sympathies and prejudices of our nature still triumph; and in leaning to what we esteem justice and equity, we only follow the leadings of a mode of thought and reasoning, that has been instilled into us through training and education. This shows the importance of proper moral instruction, and the necessity of correct early habits. We are also often misled by the force of imagination.

A celebrated French physician of Paris, author of many excellent works on the force of imagination, being desirous to add experimental to his theoretical knowledge, made application to the minister of justice, to be allowed an opportunity of proving what he asserted, by an experiment on a criminal condemned to death. The minister, by order of the Emperor, delivered over to him an assassin, who had been born of distinguished parents. The surgeon visited the prison and told the unfortunate man that several distinguished persons had taken an interest in his family, and had obtained permission of the minister that he should suffer death in some less disgraceful way than on the public scaffold, thereby saving the feelings of his family, and that the easiest death would be by blood-letting. The criminal gladly agreed to the proposal. At the time appointed the physicians repaired to the prison, and the criminal being extended on a table, his eyes were then securely bound, and he was slightly pricked, near the principal veins of the legs and arms, with the point of a pin. At the corners of the table were placed four little fountains or basins,

filled with warm water, from which poured several streams, falling into tubs placed on the floor to receive the water. The poor criminal, thinking it was his blood that trickled down his arms and legs into the tubs, became weaker and fainter by degrees. The remarks of the medical gentlemen present, in reference to the pretended quality and appearance of the blood, increased the delusion, and he spoke more and more faintly, until his voice was at length scarcely heard The profound silence in the apartment, and the constant dripping of the water, had so extraordinary an effect on the brain of the patient, that all his vital energies were soon gone, although a very strong man, weighing one hundred and ninety-five pounds, and he was dead in one hour and forty minutes, without having lost a single drop of blood.

I will give you a curious incident, which will show you how fancy will put life into young limbs.

A gentleman having led a company of young children beyond their usual journey, they began to be weary, and cried to him to carry them; which, from their number, he could not do, but he told them he would provide them with horses to ride on. Then cutting little sticks, he gave one to each, and providing a larger one for himself, he bestrode it; whereupon they straddled each their stick and rode home without the least complaint.

The religious fanatic and the martyr to political excitement have exhibited resistance to physical agents to a degree of inflexibility almost incredible.

The Shakers believe that, in their trances and visions, their souls visit the heavenly world.

In this state, the lancet has been applied to them, and their flesh scarified without producing a particle of blood. This will plainly show you the power the mind exercises over the physical system, or in other words, over the body, and its great influence in producing a cure in many diseases.

Some persons suffer much more from pain than others; it is well known that all do not bear surgical operations equally well. This is, doubtless, greatly dependent upon their organization, although it may be modified by habits of endurance, or on the contrary, in particular diseases, depending on the condition of the nervous system at the time, which should be particularly and strictly attended to, for it is remarkably susceptible of impressions. The slightest motion of the muscles, the slightest breath of air, will often induce the most excruciating torment, where it is morbidly impressed; the operation of medicine is interfered with, and regular physiological action must be importantly modified. For example, we see this in the cases of many females at the time of child-birth, labor pains may be proceeding in

the most gradual and favorable manner—but if any thing should keep the expected physician from attending, and a stranger is called in, and particularly if she has want of confidence, or has any prejudice against the man, her pains will at once subside, and her delivery be greatly retarded; but should the physician or midwife, in whom she has confidence, attend her, the delivery of the child will be much speedier, and no doubt much easier.

Dr. A. T. Thompson, of London, an eminent man in his profession, related to me many highly interesting cases of this nature. "I give you a case," said the doctor, "as an illustration of the control of the mind over the operations of medicine, where the whole effects must have been induced through the nervous agency, modifying the functions of the organs concerned. A lady was laboring under an affection of the bowels, attended with severe pain and the most obstinate costiveness. She was bled, the warm bath used, and fomentations frequently resorted to, and purgative medicines freely administered, with injections and anodynes, but without the least effect upon the bowels, and without affording any relief from pain. At length the physician in attendance was informed that she had expressed her conviction, that if her usual medical attendant, who was then in the country, and alone understood her constitution, could be called, she would be relieved.

"This physician was accordingly sent for, and on his arrival, although no change either of measures or medicines was resorted to, her bowels were quickly moved, sleep and entire relief of pain followed, and in a few days she was perfectly well."

Medical faith is a matter of very great importance in the cure of diseases, and in my practice I wish I may never have a patient who has not implicit confidence in me as a physician, for when faith is wanting little success is to be expected. The influence of HOPE is also necessary to procure relief, and the alleviation or removal of disease is, in a great measure, dependent upon the condition of the mind.

The agreement between the mind and body is constant. The administration of new medicines, without possessing any thing particularly novel or powerful, will frequently induce an amendment of the disease, and this is often the reason why medicine prescribed by physicians of celebrity, or professors, has been known to succeed better in their hands than in those of other persons.

It is greatly the confidence and hope of the patient that works the cure.

Disease is well known to depress the powers of the understanding as well as the vigor of the muscular system, and will also deprave the

judgment as well as the digestion. A sick person, in particular, is extremely credulous about the object of his hopes and fears. Whosoever promises him health, generally obtains his confidence; and this is the reason why so many become the dupes of quacks and patent medicines. And I again repeat it, medical faith is a matter of very great importance in the cure of all diseases, and where the physician has not the confidence of his patient, he had better surrender him into other hands.

"Hippocrates admitted, that that physician performed the most cures, in whom the patient placed the greatest reliance; how important, then, a great name! Dr. James has related a case communicated to him by the late Professor Coleridge, which strikingly illustrates the power of the imagination in relieving diseases. As soon as the powers of nitrous oxyd were discovered, Dr. Beddoes, of the London Hospital, at once concluded that it must necessarily be a specific for paralysis or palsy. A patient was selected for the trial, and the management was intrusted to Sir Humphry Davy. Previous to the administration of the *gas*, he placed a small clinical thermometer under the tongue of the patient, as he was accustomed to do on such occasions, to ascertain the degree of animal temperature with a view to future comparison.

"The paralytic man, wholly ignorant of the nature of the process to which he was about to be submitted, but deeply impressed with the representation of Dr. Beddoes as to the certainty of success, no sooner felt the thermometer under his tongue than he concluded that the gas was in full operation, and in a burst of enthusiasm, declared that he already experienced the effect of its benign influence throughout his whole body. The opportunity was too tempting to be lost. Davy cast an intelligent look at Coleridge, and desired the patient to call again on the following day. The man again called at the appointed time, when the same ceremony was performed, and repeated every succeeding day for a fortnight; the patient gradually improving during that period, when he was dismissed as cured, no other application having been used.

"Prof. Woodhouse, in a letter to Dr. Mitchell, of New York, has given a recital, which also tends to show what singular effects can be caused if the imagination be previously and duly prepared for the production of wonders. At the time that the nitrous oxyd excited almost universal attention, several persons were exceedingly anxious to breathe gas, and the professor administered to them ten gallons of atmospheric air, in doses of from four to six quarts. Impressed with the belief that they were inhaling the nitrous oxyd, quickness of the pulse, dizziness, vertigo, difficulty of breathing, great anxiety bout

the breast, a sensation similar to that of swinging, faintness, restlessness of the knees, and nausea, or sickness of the stomach, which lasted from six to eight hours, were produced"—symptoms entirely caused by the breathing of nothing but common air under the influence of an excited imagination.

The force of imagination, the power of fear, exercised on the animal economy, are admitted by every medical observer, and indeed by every one of common sense; and the limits to which their operations are to be assigned, no one can designate. This subject is of great importance to the medical man, if he wishes to practice successfully; and how very much is it to be regretted that so little attention is paid to this important subject, the influence of the mind upon the vital functions.

Research in such a field of inquiry, I doubt not, would display many phenomena, which, in ancient times, were attributed to supernatural causes, and latterly to magnetic and other causes, which might be satisfactorily referred to the operations of the nervous system alone, without the supervention of other agencies. The *modus operandi* is not understood, and the opinions entertained by distinguished physiologists are various.

The operations of the moral feelings and emotions in the production of corporeal diseases are far from being yet understood, and I have no doubt hundreds have died from fear during the prevalence of the cholera, who would have been living at this time had they possessed moral courage.

At the commencement of the present century, a quack, by the name of Perkins, asserted that certain diseases could be cured by merely drawing over the parts affected two metallic pieces. The extraordinary effects reported of their operation, were, by some, attempted to be accounted for by a supposed galvanic, electric or magnetic influence exerted over the disease by the peculiar composition of the metals of which the tractors consisted; but it is not always found practicable, either in physic or physiology, to discover the cause or effect of certain conditions.

A distinguished physician, of the General Hospital at Bath, in England, who had no confidence in the virtues of the metallic tractors, except through the means of the imagination, in effecting a cure, resolved upon testing, by experiment, their virtues, and communicated his intentions to his friend, Dr. Falconer.

They selected five patients from the hospital. The diseases under which they labored were various and of a chronic character, such as gout, rheumatism, palsy, debility, pains in various parts of the body. Many of them had been ill for several months, and not benefited by

the various and usual remedies used in these complaints. The false tractors were made of wood, and not of metal, and painted so as to resemble the metallic ones in color and appearance. Upon the afflicted parts being stroked in the lightest manner by the pieces of wood, the patients all declared themselves relieved; three of them were particularly benefited, and one immediately improved so much in his walking that he took great pleasure in exhibiting proofs of the benefit he had received. One said he felt a tingling sensation for two hours after the operation.

At the Bristol Infirmary similar experiments were made, and extraordinary cures performed, so that more patients craved relief than could be attended to. Many that were unable to lift up their legs, or their arms, were, after the application of the supposed metallic tractors, immediately able to carry heavy weights and attend to their various occupations with perfect ease.

These cases are so remarkable, being also publicly done, and that, too, in the presence of the most respectable witnesses of unimpeachable veracity, although a perfect deception, established fully the extraordinary virtues of this empirical or quack remedy.

This thing called "*Faith*" works miracles. A doctor being asked the question, why he could not cure his mother-in-law, as well as his father, wittily replied, that his mother-in-law had not the same confidence in him that his father had, otherwise the cure would have been effected.

The most singular instance of the power of the will over the functions of the body, and taken altogether, perhaps, the most remarkable case on record, being supported by the most unquestionable testimony, is related by Dr. Cheyne, in his *English Malady*, pages 308 and 310. The case is that of Hon. Cornel Townshend, who for many years had suffered from an organic disease of the kidneys, from which he was greatly emaciated. He was attended by Dr. Cheyne, Dr. Baynard, and the distinguished surgeon, Dr. Skine, three of the most eminent men in England. These gentlemen were sent for, in great haste, early one morning, to witness a singular phenomenon, or strange case.

He told them he had for some time observed an odd sensation, by which, if he composed himself, he could die or expire when he pleased, and by an effort come to life again. The medical gentlemen were opposed, in his weak state, to witness the experiment, but he insisted upon it, and the following is Dr. Cheyne's account:

We all three felt his pulse first; it was distinct, though small and thready, and his heart had its usual beating. He composed himself on his back, and lay in a still posture some time; while I held his right hand, Dr. Baynard laid his hand upon his heart, and Dr. Skine

held a clean looking-glass to his mouth. I found his pulse sink gradually until, at last, I could not feel any by the most exact and nice touch. Dr. Baynard could not feel the least emotion in his heart, nor Dr. Skine see the least soil of breath on the looking-glass. We then each of us held to his lips the glass several times, examined his pulse, heart, and breath, and could not by the closest scrutiny discover the least symptom of life in him. We reasoned a long time on this strange, odd appearance, as well as we could, and all of us confessed it unaccountable, and beyond our power to explain so strange and inexplicable a case. He still continued in that condition, and we concluded that he had indeed carried the experiment too far, and at last being quite satisfied he was dead, we were about to leave him. He had continued in this situation about half an hour, it being then nine o'clock in the morning, in autumn, when, just as we were leaving, we observed some motion about the body; and, upon further examination, found his pulse and the motion of his heart gradually returning; he then began to breathe gently and speak softly. We were all astonished, to the last degree, at this unexpected change in a man we confidently believed to he dead, and after some further conversation with him among ourselves, went away fully satisfied as to all the particulars of this astonishing case, but confounded and puzzled, and unable to form any rational scheme, by which to account for it.

He afterward, several months subsequent to this event, tired and worn out by his mental and bodily sufferings, sent for his attorney, made his will, settled legacies on various servants, received the sacrament, and calmly and composedly expired in one of these extraordinary and powerful influences of the mind over the physical system. His body was examined, and all the viscera, with the exception of the right kidney, which was greatly diseased, were found perfectly healthy and natural.

This power of the will, manifested at pleasure, is perhaps one of the most remarkable phenomena connected with the natural history of the human body. The distinguished Dr. Benton in his works alludes to cases of the same kind, and reports that the celebrated Carden Hagged could separate himself from his senses when he pleased.

Celsus makes reference to a priest who possessed the same extraordinary power.

While I was in London attending the lectures, a lunatic was admitted into the asylum, who imagined that she was laboring under a complaint that required the use of mercury, but the attending physician, Sir William Ellis, on examination of the case, finding her disease to be entirely in the mind, yet considering that flattering the opinion of the poor lunatic to a certain degree would be favorable to the recovery

of her reason, gave her pills made of bread, and called them mercurial After a few days using them, she was, to the great astonishment of the doctor, nurses, and students, actually salivated, and the pills were discontinued. On again ordering them, after the salivation had subsided, she was again affected by them in the same manner, and this happened on a recurrence to the use of the pills a third time. By thus indulging her request, she at last recovered her reason and was discharged perfectly satisfied, in fine spirits and good health.

The *London Medical Times* relates a curious experiment, tried in Russia, upon some murderers, showing the force of imagination. They were placed, without knowing it, in four beds where four persons had died of cholera. They did not take the disease. They were then told they were to sleep in beds where some persons had died of malignant cholera, but the beds were in fact new, and had not been used at all. Nevertheless, three of them died of the disease within four hours.

The influence of a mother's imagination on the unborn child, although strange, is in many instances very powerful, producing through life peculiar traits of character, as well as disease or bodily deformity.

In a number of the *Scalpel*, a monthly medical work published in New York, by Dr. Dixon, is related the following interesting case of the influence of a mother's imagination upon the unborn child. Mr. A, of a northern part of the State, married, some forty years since, a lady of an adjoining State. Pecuniary circumstances (or in other words, poverty), at the time of the marriage, rendered offspring undesirable, and he often expressed a wish to have no children until their circumstances became better. Within a year, however, it became evident that she was in the family way; on expressing her fears to her husband, she was greatly distressed at the dissatisfaction he appeared to feel on receiving this information. Taking his hat shortly afterward, he left the house, and was absent for near an hour. He was, however, greatly distressed on his return to find his wife in tears. He assured her immediately (for they were devotedly attached), that he was rejoiced to learn the probable realization of her announcement; that he was now satisfied with the prospect of bettering his condition in life, and that his affairs were so much improved that he would be glad to have children, and sought by every means in his power to comfort her. The poor wife dried her tears, but soon expressed her conviction that, in some way, her expected offspring would suffer from her agitation. The husband endeavored to remove her apprehensions by gentle and affectionate ridicule. But her fears continued at intervals during her early months, and gradually increased as gestation or pregnancy advanced. The relief of the parties was great at the birth

of a healthy and well formed boy. No peculiarity of conduct in the child was observed, till several months had elapsed, and then their fears were renewed by its extreme unwillingness to approach the father. This gradually increased, until its dissatisfaction was manifested by loud and continued screaming when brought near him. As age advanced, the most persevering effort was made to overcome this repugnance; the utmost degree of persuasiveness and kindness toward it; gifts and sports, and every ingenuity were tried in vain. The child never could bear the sight of its father, and this utter disgust and dislike increased as it grew up, and so continued. The son, now an active and rising member of the bar, had never been able to speak to his father, though the most painful efforts were made. The feelings of the father may be judged by parents, for he was, and is, an exceedingly affectionate man. We give this case, knowing it to be true, for Dr. Dixon, a medical gentleman with an unusual degree of ability and practical knowledge, has a personal acquaintance with the parties, and of the whole matter that has been productive of so much distress.

Many cases occur showing the peculiarity of patients as to particular medicines, and the effect produced by them on various constitutions, and not unfrequently on some preconceived opinion or prejudice respecting their action, etc. During a long practice I have had to overcome many such cases.

A lady, a patient, informed me that opium administered in any way, caused great restlessness, violent headache, and vomiting. Having of necessity to use it in her case, I prescribed it under the usual medical name, *Tinctura Opii.* The following day I found that her account of its effects were correct, as she had passed a very restless night, with violent headache and vomiting. From her husband, I learned that she was in the habit of reading and commenting upon all the prescriptions of the different physicians who had previously attended her. After a few days I had recourse to the same remedy under a new name (*Tinctura Thebaica*). Now, under this new term, I gave her opium for a length of time without producing the smallest inordinate action, and without the least symptoms of headache or vomiting, but on the contrary she slept soundly and improved in health. She also spoke in the highest terms of this new remedy, so that under a new name I removed all disagreeable effects.

How often in my practice have I removed similar prejudices as to a particular medicine, by conferring on it a new name? How often do we see medicines produce entirely opposite effects to those which they usually exert over the system owing to some peculiarities of the patient? I know a lady who could not take powdered rhubarb without its producing a disease of the skin (like nettle rash), and that in a

few moments after she had swallowed it, and yet she could take it in the form of an infusion without producing this effect. Dr. Dunglison, professor in the University of Maryland, says: "I know a gentleman whom opium purges, yet this drug is usually administered to check inordinate action in the intestinal tube, or, in other words, to check purging." The doctor says that there are very few functions of the body that are entirely free from these peculiarities. Many persons can not be present where ipecacuanha, or tartar emetic, is exposed, without a disposition to vomit; others profess a singular abhorrence at the sight of calomel. The smell of various articles to many persons is so disagreeable as to be almost intolerable. Pope Pius VI had such an aversion to the smell of musk, that on one occasion of presentation, an individual of the company having been scented with it, His Holiness was obliged to dismiss the party almost instantaneously. The Emperor Napoleon, though a great connoisseur of snuff, could not for a moment bear the smoke of a cigar, and the Emperor Alexander expressly prohibited the use of cigars in his presence. Many persons have an aversion to peppermint, others to cinnamon, some to camphor, and many to opium, in any shape in which it may be prescribed, producing vomiting, headache, great nervous irritability, and producing no anodyne effect whatever. Dr. Thomas states the case of a lady who was always attacked with syncope (or faintness), when she took the smallest dose of calomel.

Peculiarities of this kind could be more fully referred to, but I think I have said enough on this subject to show the importance of attending to these peculiarities, and I am compelled to say (for truth is my object), that many physicians entirely overlook these important temperaments, and I have been thus particular, because, by observation and strict attendance to such cases, I have been taught this valuable lesson, "that many men may be given to profound thought, and possess extensive knowledge, united with sterling honesty, being by nature endowed with the highest order of talent, and yet be wanting in good common sense," or, in other words, "showing the importance of a sound judgment, with close observation of men and things, which constitute the chief corner-stone or paramount foundation in the successful practice of medicine, or in fact any thing else." Men may theorize finely, but at the bedside practice unsuccessfully: in prefer ence to such persons, give me a good old woman, with her teas and simples, and I will trust the rest to nature. The skillful physician, and one who has had experience in his profession, although he uses medicine, can hardly be said to use it as a curative, but rather to remove obstructions, or to arrest the progress of diseased action. For cure, he looks to the strength of the constitution which remains; to the

powers of nature to rally; to diet, drinks, sleep, exercise, change of air, hope, cheerfulness, etc.; but the reverse is the case with ignorance, or those who have had no experience. Medicine is entirely looked to as means to effect a cure, and in proportion to their ignorance will be their confidence in drugs, and an utter want of faith in the use of simples, good nursing, the influence of the mind, and above all, the restorative power of nature. This clearly explains why it is that the most distinguished physicians feel the deepest conviction of the uncertainty of medicine. At every step they find it necessary to exercise great caution, as, notwithstanding the experience of three hundred years, the medical profession are still doubtful whether the remedies daily used act in unison and harmony with the laws of animal life. This, with many other mysteries not yet clearly explained, has been deplored by the best and wisest men that have adorned the profession of medicine. I will refer you to the work of Dr. Chapman, professor in the Medical School of Philadelphia, which says: "Taking drugs habitually conduces to destroy the stomach. Every ache or discomfort, real or imaginary, must be relieved by a recurrence to some supposed remedy, till finally the powers of the stomach are worn out, and derangements, functional or structural, take place." It would be salutary were such people constantly to bear in mind the epitaph of the Italian count, who fell a victim to his bad habits:

"I was well—
Wished to be better,
Took physic and died."

Nor can the profession escape the imputation of lending its contribution to this mischief. When called to a case of such obscurity, that no distinct idea can be formed of it, how often do we go on groping in the dark, pouring down drugs empirically, till the stomach gives way, and its derangements are added to the pre-existing affection, by which the case is made of greater complexity and enhanced difficulty of cure! "It is not easy," says the doctor, "always to avoid this course, from the ignorance or prejudice of mankind."

The predominant estimate of the profession, even among the most enlightened people, leads to the delusive supposition that the *Materia Medica* has a remedy for every disease, and that the want of success, under any given circumstances, is owing to the poverty of resource of the practitioner in attendance. Confidence is soon withdrawn should he intermit his exertions.

And now let me say to you, from experience and a desire to inculcate lessons of truth, which you will find useful, avoid as much as you can dosing and drugging.

Then let me, for the last time, implore you, in the language of soberness and truth, to depend more on diet, exercise, traveling, change of climate, amusements, or on the presentation of new objects, by temporary absence from the cares of business; in other words, give the mind rest, for many persons are not aware of the serious ills inflicted by confining themselves to counting-houses, stores, and offices, with scarcely any exercise given the body during the day, and no rest of mind. They should change their thoughts to some agreeable and useful amusement calculated to cheer and keep up the healthy action of the system, otherwise they will bring upon themselves very severe forms of ill-health, and that perhaps for life. Hence the reason why so many sickly and pale faces we see pass along our crowded cities, and so much dyspepsia, saying nothing of many other well-known diseases of mankind. Forgetting that *exercise is necessary for health*, all seem to be imbued with the single idea of accumulating wealth, and not *health*. What is money worth to us if we lose our health? How many do we see who toil from day to day, like slaves, for the purpose of securing a large sum of money for their children, and when they have succeeded in doing so, they die without perhaps attaining their fortieth year? How many thousands yearly are sent to their long account by the constant use or abuse of medicines; for it seems to be the order of things, at the present day, that cures are to be effected, not by the recuperative powers of nature, but by the quantity of drugs or medicines swallowed. Every slight disease they imagine must be followed up by some active poison—*for medicines are poisons*—instead of using such simple remedies as teas, cold bathing, etc., etc.; these properly used may assist nature to perform the cure completely.

Poor human nature! How fearfully does it deceive itself when it flies to drugs to relieve every disease! Look into our large and commercial cities, where more work is done with the head than with the hands; where every kind of food for the passions is not only superabundant in quantity, but of the most stimulating quality, and where thousands, who never labor at all, are found who, through the unnatural degree of excitement kept up in the brain and nervous system, and the full play of the passions, bring very great injury to their health. An attentive examination of every class of society will convince us, that in proportion as the intellect is highly cultivated, improved, and strongly excited, the body suffers, till a period at length arrives when the corporeal deterioration begins to act on the mental powers, and the proud man finds that the elasticity even of the immortal mind may be impaired by pressure too long continued, and that, like springs of baser metal, the body requires occasional relaxation and rest, instead of dosing and drugging. I do not know that this disease has ever been described before by any medical writer. I allude to that wear and tear, or state of body and mind, intermediate between that of sickness and health, but nearer the former than the latter, to which I am unable to

give a satisfactory name, although it is hourly felt by tens of thousands in the world. It is not curable by physic, although it makes much work for the doctors, and in the end, by dosing and drugging, a profitable business for the grave-digger. It is that wear and tear of the living machine, mental and corporeal, which results from over-strenuous labor, or exertion of the intellectual faculties, or rather corporeal powers—for rest assured that vivid excitement, and tempestuous mental emotion, can not last long without destroying the physical fabric; the animal and the intellectual, or, in other words, the material and spiritual portions of our being are distinct essences, and the latter will survive the former in another and a better existence; but on the earth they are linked in the strictest bonds of reciprocity, and are perpetually influenced one by the other. See that pale cheek, that eye that has lost its luster, that care-worn countenance, that languid step, that flaccid muscle, with great weakness, and the indisposition to exertion, and you will behold the results of a mind worn down by the cares and disappointments of life, and a body exhibiting a faithful picture of its influence upon it. To discover truth in science, the most learned will admit, is very often difficult; but in no science is it more difficult than in that of medicine. Independent of the common defects of medical evidence, our self-interest, our self-esteem, prejudices, and not unfrequently our ignorance, will hide the truth from our view, and we ascribe all to art, and but little to the operations of nature. The mass of testimony is always on the side of art, and although we believe we are right in our reasoning, we only pursue the old course that has been instilled into our mind, through training and education.

A long experience has fully convinced me that the healing art depends on the preservation of the restorative power, and if this once be lost, the healing office is at an end. I have before told you, in my *Domestic Medicine*, that health is to be restored by assisting nature, instead of retarding her operations. All the physician can do is merely to regulate the *vis medicatrix naturæ* (the self-preserving energy), from being excited when languid, restrained when vehement, by changing morbid action or obviating pain or irritation, when they oppose its salutary courses; "*in simplici salus*," or in other words, *there is safety in simples.*

I am not fond of introducing Latin phrases, but when I follow it with the translation, I trust my reader will pardon me. In my writings for the people, I wish to be plain and comprehensive, at the same time to expose all quackery and concealment, for we live in an age when every branch of human knowledge is being reduced to principles of common sense, and when the more important sciences are no longer clothed in mystery, when all the sources of information are open to every one who wishes to read and think for himself. The present age is favorable to every species of improvement; darkness, superstition, and ignorance are passing away, and we live when there is a general dawn of light upon the human mind

Every day witnesses new discoveries made in nearly all the sciences. The healing art is likewise improving, and we are abandoning the active remedies which have been used to too great an extent by fanatics, and begin to turn our attention to the great *volume* of *Nature*, which, upon diligent research, will amply repay us with restoratives which may bring the blessings of health. The time has arrived when the people of this country begin to read and think for themselves, to learn things and not words, to exercise their judgments in matters which concern their welfare and that of their families, instead of paying other people to think for them.

All men and women who possess good common sense, should exercise their judgments in matters that concern their health, and that of their families. They do know, or they should know, their own constitutions best, and study the economy of *health*, not depending on dosing and drugging to the exclusion of exercise, diet, and change of air. Innocent amusements were intended by the Deity for our happiness, and the young should be permitted and taught to indulge in them in a moderate and sensible way. Old and young need periods of recreation. Instead of using medicines daily, which destroy the constitution and leave the whole body worn out, a living thermometer to every change, be your own guide, only be guided by reason and common sense. Thousands die annually, from a wild and infatuated course of swallowing patent medicines daily, without reflecting that they are taking poison.

It is said of the celebrated Dr. Radcliffe, that he was not in the habit of paying his debts without much following and importunity, nor then, if any chance appeared of wearing out the patience of his creditors. A poor man who had been doing some paving for the doctor, after frequent and tedious calling, at last met him getting out of his carriage near his own door, at Bloomsbury Square, London, and dunned him for his bill. "Why, you rascal," said the doctor, "do you intend to be paid for such a piece of work as this? Why, you have spoiled my pavement and then covered it with earth to hide the poor work." "Doctor," said the poor man, "mine is not the only piece of bad work that the earth hides." "Well," said the doctor, "there is much truth in what you have said," and at once paid the bill.

Dr. Shippen, one of the most distinguished medical gentlemen of Philadelphia, and a teacher of medicine in the old medical college of that city for more than forty years, says, "If you find it necessary to have recourse to medicine, there are three kinds which you may make use of with safety, viz.: a tranquil mind, exercise, and a temperate diet. These," said that venerable and most experienced of physicians, "are the best remedies I have ever prescribed."

The celebrated French physician, Dumoulin, on his death-bed, when surrounded by three of the most distinguished medical men of Paris, who were regretting the loss which the profession would sustain in his death,

said: "My friends, I leave behind me three physicians much greater than myself." Being much pressed to name them (each of the doctors supposing himself to be one of them), he answered, "*water*, exercise, and diet." The practice of every experienced and judicious physician becomes more and more simple the longer he lives. An old physician who administers much medicine is the worst kind of a quack, for his experience ought to have taught him that there are thousands of prescriptions, yet but few remedies. The distinguished Dr. Radcliffe said, that "the whole mystery of physic might be written on half a sheet of paper."

The opinions of some of the greatest medical men who have ever lived, are sufficient to convince us that one of Burns' "Twa Dogs" was right, when he said:

"But human bodies are sic fools
For all their colleges and schools."

The late Professor of Materia Medica in Brown University, after half a century of professional labor, says, "What a farrago of drugs has been and is daily used by many physicians! I have really seen," said the professor, "in public, as well as in private practice, such a jumble of things thrown together, and so much medicine administered unnecessarily, that it would have puzzled Apollo himself to know what it was designed for."

A certain practitioner said, that the quantity, or rather the complexity, of the medicines which he gave his patients, was always increased in a ratio with the obscurity of the case. "If," said he, "I fire a great portion of shot, it will be very extraordinary if some do not hit the mark." A patient in the hands of such a man is certainly no better situated than the Chinese mandarin, who, upon being attacked with any disorder, calls in twelve or more doctors; after which he swallows, at one dose, their several prescriptions. Instead of such wild theories, it would be better to tread the path pointed out by a strict observance of nature, simple prescriptions, and simple remedies; for it seems that the human constitution, or corporeal frame, was not thus intricately and wonderfully formed, to require, in repairing, what some physicians term the *broad-ax*, or, in other words, the most active and powerful remedies. It is well known that some of our active remedies, when used to too great an extent, produce disease more difficult to cure than that which they were designed to obviate.

So, always avoid, as much as possible dosing and drugging. When I was a young man commencing the practice of medicine, I was sure of curing every disease by active remedies and administering a great deal of physic, but in a few years I found, by experience, that I was in a thousand instances mistaken. I lost half my confidence in many remedies, and this must be the conclusion of every rational and experienced practitioner; for as he grows old in his profession, he becomes the more convinced of the uncertainty of medicines. A wealthy city merchant, who

resided in London and lately retired from business, called upon Sir Astley Cooper, to consult with him upon the state of his health. The patient was not only fond of the good things of this world, but indulged in high living to a great excess. This was soon perceived by this eminent man, who thus addressed him: "You are a merchant, sir, and possess an entire knowledge of trade, but did you ever know of an instance in which the imports exceeded the exports, that there was not a glut in the market? That is the way with you, sir. Take more exercise and eat less, drink no wines or spirituous liquors of any kind." The gentleman took the hint, and has since declared the doctor's knowledge of the "first principles of commerce, and his mode of giving advice, rendering it so clear to the most humble capacity, has not only enabled him to enjoy good health, but prolonged his life for many years." It was the opinion of Dr. Rush, "that if the same amount of care had been taken to instruct and improve the human species, that has been bestowed upon domestic animals during the last century there would have been but little need or use for medicines." Man has not been sufficiently considered as an animal. If we paid as much attention to our children as we do to our horses, they would be more healthy, their intellectual powers be in a greater state of preservation, and cultivated at a later period in life. It is highly necessary that man should be attentive to the regulation of his animal appetites. Education commences in the cradle and terminates only in the grave. I am convinced that the mind of man might, like the sun, grow larger at its setting, and shed a more beautiful light at the period of its decline. Remarkable instances are afforded in the celebrated Jeremy Bentham and John Howard, whose lives were devoted to acts of charity and deeds of benevolence, and furnish examples of the efficacy of controlling the animal appetites in prolonging life.

The possession of a sound mind in a sound and symmetrical body was esteemed by the ancients to be the greatest blessing which man could enjoy. This truth being proclaimed so long ago, renders it very strange that mankind have not profited by it and endeavored, by every means in their power, to secure a healthy body; for the powers of mind, the evenness of the temper, the kindness of the disposition, all depend upon the state of our physical frames.

Providence puts into our hands the means of preserving health, and this gift involves a solemn responsibility. Health will be counted among those talents for the use of which we are to answer to our Creator; and it is our duty to become acquainted with those laws which regulate and govern it. This is properly termed physical education, and it should be so instilled into our minds, as to render the subject perfectly familiar to us all; for there is but little doubt that we bring most of our diseases upon ourselves by imprudence and the want of a proper knowledge how to ward them off; and if not the effect of our own neglect, they are traceable to ignorance or

a want of proper management by our parents or the guardians of our youth, and not unfrequently entailed upon us by them. Then be assured that nature will, sooner or later, call us to an account for a violation of her laws. It is true, for a time we may escape, but the debt and its interest are both accumulating, and must at last be paid. How many charge nature with that which has accumulated through neglect of the economy of health; by attention many evils might be obviated, life prolonged to a good old age, and a large amount of physical suffering diminished! Young persons should be taught the value of health and the means of preserving it, by the subjugation of every immoderate desire, appetite, and passion, thus they may prolong life, and, with proper precaution, live almost uninterruptedly in a perfect state of health.

A knowledge of the circumstances upon which health depends, is one of the most important parts of the moral and intellectual education of youth. We should open the fountains of knowledge to the young on these subjects, so that they may have in store useful information, be well equipped for the voyage of life, prepared to ward off disease, and prepared to strengthen, if necessary, a weakly constitution. Well informed in these matters, they may be useful, in cases of sudden emergency, to the afflicted. The five ordinary secrets of health are, temperance in avoiding all intoxicating liquors, exercise, personal cleanliness, regular hours, and rising from the table with the stomach unoppressed. The use of mustard, pepper, or anything to stimulate the appetite, should generally be avoided.

There may be slight indisposition in spite of the observance of these rules, but you will find all diseases much milder. By observing them you have an assurance, almost, that you will escape disease altogether. Most of the ancient philosophers may be named as patterns of health, temperance, and long life. Pythagoras restricted himself to vegetable diet altogether—his dinner being bread, honey, and water. He lived upward of eighty years. His followers adopted the same diet, and with results equally striking.

It is well known that the early Christians, also, were remarkable for temperance and longevity, too, when not removed by persecution. Matthew, for example, according to Clement, lived upon vegetable diet. The eastern Christians, that retired from persecution into the deserts of Egypt and Arabia, allowed themselves but twelve ounces of bread per day as their only solid food, with water alone for drink, yet they lived long and happy. St. Anthony lived one hundred and five years; Simon Stylites, one hundred and nine; James the Hermit, one hundred and four; St. Jerome, one hundred; Epaphanus, one hundred and fifteen; Romauldus and Arsenius, each, one hundred and twenty years. By a proper course of temperance in all things, no matter under what circumstances or climate we may be placed, our health will be comparatively secure, our longevity will be increased, and our happiness established; for where there is no temperance,

there is no moral virtue, nor any security against crime; where spirituous liquors are used, the mind is under a state of animal excitement, the judgment is marred by false and imperfect reasoning, and the consequences thereof are habits which, morally and physically, destroy health. Then taste not, handle not, the unclean thing. When it is used, the passions become wild as the winds and raging as the waves. Without it the mind is calm and tranquil, seeing all things in their proper light. In a word, happiness can not exist where temperance is not; and let me assure you that most of our diseases and interruptions to health are the effects of intemperance—and I have no doubt that by proper caution in avoiding stimulating drinks, we may live, in a great measure, uninterruptedly free from disease, notwithstanding the constitution may be reduced in strength and vigor from being born of unhealthy or intemperate parents, which inherited misfortunes may be entirely overcome by diet, exercise, change of climate, and a perfect system of temperance in avoiding all spirituous liquors. These laws should be strictly observed through life, for there are very few individuals totally exempt from some predisposition to a particular disease which may trouble them while life lasts.

All physical peculiarities in the parent are hereditary; even the age is hereditary, and we may trace in the unconscious infant even the lines of that care which is ushering the decrepid parent into the grave.

I am fully convinced, from a long experience and strict attention to this matter, that much idiocy, as well as predisposition to madness, with very much nervous disease, is transmitted by the parents to their children, imparted through sympathy as well as by other means, which delicacy forbids me to explain, and which will be more fully communicated under the head of private diseases. Many diseases are hereditary, and it is well worth the attention of those who feel the interest natural to parents in the happy establishment of their children, as well as the advisers of those whose interest and happiness may be secured by a proper precaution in their selection of companions for the marriage state. I will mention some of the most prominent diseases, viz.: madness, consumption, epilepsy, cancer, nervous affections, and also diseases which have been handed down to posterity, by imprudence—or, in other words, diseases of a private nature, which have never been eradicated from the system, which facts are well authenticated and deserve strict attention. In the administering of medicines, to be successful in your practice, always look well to these peculiarities of constitution; in a word, if you wish to place human happiness on a surer basis, you must look more to temperance than to medicine. That certain diseases are hereditary, or entailed by parents upon their offspring, I have before mentioned. But that this taint is often aroused in early life, by their discipline, is equally true. The influence of laws, institutions, and habits upon the vigor and health of man, is more powerful than most of those, who have never studied the subject, imagine. Civilization

and its attending consequences not only bring with them many pleasures, but they also produce corresponding evils. As society is restrained and complicated, as the luxuries of life increase, and as indolence and a want of proper muscular action prevail, the constitution becomes enfeebled, and bodily and mental development retarded. Many, and indeed most, of our diseases were unknown to our aboriginal inhabitants. The stately Indian roamed the forest, ascended the mountain hight, and leaped over the precipice in pursuit of game, or lay upon the earth during heat and cold, summer and winter, almost destitute of clothing; still consumption, dyspepsia, and gout, with many of the common diseases of civilized life, were unknown to him. The shepherd, too, in his pastoral life, guarded his flock and sung his wild notes without stricture of the breast, or pain in the lungs. It is, therefore, a matter of the utmost importance, in the education of youth, to teach him how far the luxuries and habits of civilized life, and its dissipations, tend to shorten, or render us miserable, in order that he may correct his ways, and thus avoid premature suffering or early death. No nation can be powerful whose inhabitants are either mentally, morally, or physically enfeebled. It is true that the habits of the people of the United States have made but few inroads upon their bodily developments, but still we have no evidence that this state of things will continue. Already they are beginning to depart from the simplicity of their forefathers, and as the population becomes more dense from the immense immigration to this country, as wealth accumulates in the hands of the few, and the many are shut up in manufactories, and as the opportunities of intemperance of thousands worn to death by the toils necessary to procure subsistence increase, the frame must continue to lose tone and elasticity through succeeding generations. It is already a common observation in our country, that men of talent and persevering industry in the professions, or among statesmen, or among merchants, spring from those who are accustomed to a country life, where the various luxuries and dissipations of cities are comparatively unknown.

In order to guard, with any degree of certainty, against those diseases, we should have a knowledge of the laws which govern the animal economy. Without it, we shall be groping our way in the dark; anxious, no doubt, to discover the right passage, but afraid that we are departing further from it.

That is the case with men and women who do not possess that *most important* of all commodities, *common sense.* Now, every man who has ever reflected upon this subject, for one moment, must know that there are certain kinds of constitutions, or forms, in which certain maladies are extremely liable to be implanted, or, in other words, entailed upon the offspring, by the parent. Now, if this constitution, or make, be kept from under the influence of such causes as excite the diseases to which it is predisposed, into action, it may pass on through a long life, without exhibiting

any of the marks of the disorder which destroyed those that immediately preceded it; and the truth is, it may even become so changed by proper exercise and habits, and even a union with a healthy person, that no common exciting cause can produce the disease to which it was previously exposed.

To illustrate my meaning on this subject more clearly, many of our most talented youth of both sexes die, at an early period of consumption. This disease is hereditary in many families, that is, the same kind of structure descends from the parent to the child, who not only resembles the father or mother in shape and countenance, but the structure of the lungs is almost precisely the same. If exposed to sudden vicissitudes of temperature, or kept for six or eight hours in a hot, ill-ventilated room, breathing the impure air, which has already passed several times through the lungs of others, he will probably fall a victim to the disease of his parent. The structure of the lungs was like his or hers, the most delicate portion of the system, and hence these organs were the most liable to disease. Now we often see that exercise in the open air, change of climate, nutritious diet, proper raiment, and avoiding all causes which predispose to these diseases, produce good health; we know, or ought to know, that proper exercise expands the chest, promotes the easy circulation of the blood, and develops the muscular growth, without exhausting the system.

Hereditary descent of mental talent is likewise evident from a number of facts—a few of which are selected for the purpose of illustration, and it will appear remarkably striking, that such an inheritance is more generally derived from the maternal than paternal side. In the examples to be adduced, a selection has been made with a view to the different varieties of mental superiority, and the following comprehends poets, historians, and orators:

Lord Bacon; his mother was daughter to Sir Anthony Cook; she was skilled in many languages, and translated and wrote several works, which displayed learning, acuteness, and taste. Hume, the historian, mentions his mother, daughter of Sir D. Falconet, president of the college of justice, as a woman of singular merit, and who, although in the prime of life, devoted herself entirely to his education. R. B. Sheridan; Mrs. Frances Sheridan was a woman of considerable abilities; it was writing a pamphlet in his defense that first introduced her to Mr. Sheridan, afterward her husband; she also wrote a novel highly praised by Johnson. Schiller, the German poet; his mother was an amiable woman; she had a great relish for the beauties of nature, and was passionately fond of music and poetry; Schiller was her favorite child. Goëthe thus speaks of his parents: "I inherited from my father a certain sort of eloquence, calculated to enforce my doctrines to my auditors; from my mother, I inherited the faculty of representiug all that the imagination can conceive, with energy and vivacity." Lord Erskine's mother was a woman of superior talent and dis-

cernment; by her advice her son betook himself to the bar. Thompson the poet; Mrs. Thompson was a woman of uncommon natural endowments, possessed of every social and domestic virtue, with a warmth and vivacity of imagination scarcely inferior to her son. Boerhaave's mother acquired a knowledge of medicine not often found in females. Sir Walter Scott; his mother, Elizabeth, daughter of D. Rutherford, was a woman of great accomplishments and virtue, and had a good taste for and wrote poetry which appeared in print in 1789. We might further mention the mother of Marmontel, of Bonaparte, Sir William Jones, and a host of others; but among others the mother of George Washington should not be forgotten, who according to the writings of that distinguished man, was the origin of all his greatness, and implanted firmly in his bosom all those virtues for which he was so much admired.

You will perceive that I desire to point out to you the importance of a strict attention to the peculiarities of the constitution, for I honestly believe that two-thirds of the diseases to which the human family are subject, can be removed by simple remedies and proper training; in other words, a correct course of exercise, diet, temperance, and change of climate before it is too late; particularly a sea-voyage, which generally gives a freshness and transparency to the skin, resembling the freshness of youth. The great misfortune is that thousands of persons who are diseased, put off these remedies until it is too late.

I shall now conclude my Remarks with these solemn admonitions, that health and happiness can never exist where temperance is not, and where piety is not a constant visitor. There is no solace or balm against the cares, disappointments, and vicissitudes of life. All that is bright in the hope of youth, all that is calm and blissful in the meridian of life, all that is soothing in the vale of years, are derived from temperance and religion. The first wards off disease; the second calms and tranquilizes the mind under every affliction. This friendly visitor of the Cross soothes the mind, and throws around the bed of sickness the arms of Divine mercy. Solitary indeed is that couch where the emaciated, strengthless form is stretched, unaccompanied by these dawnings of eternal day. No starlight brightness, no cherub wings are hovering around the dying pillow. In vain are the arms of friendship extended, or the bosom of love opened; the rays of hope may gleam for a brief moment in the horizon of the mind, but, alas! they are cold and cheerless; no vivifying influence passes over the feverish brain; no holy gust of ecstatic joy sublimates the mind, and in quick succession, the past, the present, and the future pass before the mind, presenting at a glance the false colorings of the world. The trembling soul dreads the future. No uplifted arm makes strong the soul, nor points with unerring truth the bright way to the mansions of eternal bliss. So that often the cry is heard, "How hard it is to die! All is lost!"

# OF THE PASSIONS.

To SUBDUE the passions of creatures who are all passion, is impossible; to regulate them, appears to be absolutely necessary. And what are these passions which make such havoc, causing striking differences, exciting and depressing the spirits, leading to ecstatic enjoyment, or plunging us in the severest afflictions? What are they more than the development of our sensibility?

*Life is shortened by indulgence in anger, ill-will, anxiety, envy, grief, sorrow, and excessive care.* Therefore it is the province of wisdom to exercise a proper control over the passions. If you permit them to govern you instead of governing them, you destroy the vital powers, you destroy digestion and impair the whole nervous system. To attempt to regulate the actions and functions of the body without paying any attention to those of the mind, is like sitting down contented upon escaping one evil, while another of equal importance is still impending. *A wise man governs his passions, but a fool permits his passions to govern him.*

## INFLUENCE OF THE MIND UPON THE BODY.

THE passions are modifications of self-love. The preservation of man is the center toward which all his affections and all his actions converge; he inclines strongly toward pleasure, which maintains or augments the quantity of life that he possesses, and he avoids every thing that can injure him. Pleasure and pain are the generative elements of all the passions, which may be reduced to two, love and hatred

Pleasure is only momentary; we judge of it by its intensity. Its duration establishes happiness. The greater the pleasure a person experiences, the greater is the apprehension which he has of being deprived of it. This is the origin of fear, which is ordinarily accompanied with *hope*, because these two affections have a common source, the probability of good and evil. Fear gives way to sadness when hope is destroyed; but if we only see in time to come a series of

endless misery, then our sadness is changed to despair, and existence becomes a burden. It is the inherent principle of self-love which makes a man pursue objects that increase happiness. Naturally inconstant, he wishes to vary his agreeable sensations, and his curiosity once satisfied by a new pleasure, he experiences for it a sentiment of admiration. This sentiment belongs alone to great souls. It is not, however, the same with weaker minds; they envy in others the blessings which they do not possess themselves. This passion, envy, is the greatest pest of social order. I will pursue no further the subject of self-love. It will be noticed in its proper place. It is sufficient for me to have explained the manner in which the passions are formed. Some cold moralists have improperly condemned the passions, and have wished to make man a dispassionate being, an automaton, in order to conduct him to perfection. Why we are so differently constituted will be unfolded at that great day, when the wisdom, the power, the mercy, and the goodness of the Almighty shall be made manifest. It is as impossible for man to live without passions as to exist without thought. They are necessary to life. The heart of man has a horror for the state of vacuity.

It is only the abuse of the passions which is to be condemned. The functions of the body can exercise themselves in a proper manner only as the epigastrium receives and sends back freely the action; hence the affections of the mind prevent the concentration of the energies and promote their free circulation, and in this respect they are absolutely necessary to life. I am, here, only to be understood as speaking of the moderate affections, and not of extreme passions, which are very dangerous, and which, carried to excess, may occasion fatal consequences. The difference between one man and another is, that one governs his passions and another is governed by them. A man who permits his passions to govern him, can never be happy; he will be discontented, irritable, and quarrelsome, and throw a tempestuous atmosphere around him, which makes him move in the regions of storms—he employs sure means to shorten and embitter life, whatever may be his external circumstances. He becomes the architect of his temper, and misery must be the result of his labor.

The passion for present and posthumous fame, is a deep and abiding principle in the human heart. To be remembered after one is gone—to leave a name that shall "wake the echoes of eternity," and survive the wreck of mortality—is an object dear to the human heart and to its dreams of ambition. Yet, how vain is the hope, how preposterous the desire! How frail is even the strongest bark upon which man relies to float his fame to future generations! What, indeed, is earthly immortality but a mere name, a delusive halo, devised to counteract,

in some measure, that instinctive dread of death so natural to the bosom of man!

The mind is immortal, full of undying thoughts and sublime conceptions. It can lighten through all ages, it can resist the progress and the power of time, and bid defiance to the dominion of decay. It can dart through space, span the universe, and scatter around it, in living and breathing creations, the ample evidences of its divinity. It can throw its richness into the colors of the canvas till rapture shall stand still to gaze upon it. It can embody in marble all the fervor and intensity of passion, and all the sublimity of its emotion. It can infuse into language an eloquence that shall move, melt, and charm the heart of a world. Yet what avails all this, while the materials with which it works are changing, fragile, and perishable? Thought, genius, fancy, may be immortal, while language, marble, and canvas, all must fail. But the man who governs his passions—who is humble, cheerful, contented, and subdues his temper—will endure disease, and be much more easily relieved of bodily ills, and, amid all the privations, difficulties, and disappointments to which we are more or less subject, will find himself able to maintain an unruffled serenity.

The stream descending slowly, with gentle murmur, from the mountain, and rippling through the plain, adorns and enriches the scene; but when it rushes down in a roaring and impetuous torrent, overflowing its banks, it carries devastation in its course; so the passions, appetites, and desires, kept under due restraint, are useful, and fulfill the intentions of a wise and overruling Providence; but, when allowed to rage with unbridled fury, they commit fearful ravages on the character they were fitted to adorn and exalt. If we wish the stream of life to be pure, we must preserve its source unpolluted; and to enjoy health and long life, the passions should be kept under due control. They may be considered the moral thermometer that regulate the system and hold the most powerful influence over the general health. In a temperate exercise of all the physical, intel lectual and moral faculties, we enjoy that peace of mind which essentially contributes to a long life, and soothes the spirit to repose amid the trials of this world. In the exercise of benevolence, friendship, love, and a good conscience, with tender, refined, and elevated thoughts of the goodness of God, and our duty to our fellow-creatures, we may be happy. These are never-failing sources of delight, and promotive of health; whereas pride, envy, jealousy, covetousness, anger, and all the passions, habitually indulged to excess, not only embitter our happiness, and that of all around us, but sap the foundations of health, and shorten the period of existence. Guard against

them with unremitting vigilance. Our passions when controlled are the genial warmth that cheers us along the way of life: ungoverned, they are consuming fires. The highest and most profitable learning is the knowledge of ourselves. All men are frail; no self-government is perfect without religion. If thou art better than another, it is not to be ascribed to thyself, but to the goodness of God. Thou canst not tell how long thou wilt be able to continue in the narrow path of virtue. The great Boerhaave, so distinguished for the attainmen of the most serene self-command, was so profoundly humble, that when he heard of any criminal condemned to execution, would exclaim, "Who can tell whether this man is not better than I?" Then, let us rely for aid on our Heavenly Father, who hath said, "If any man lack wisdom, let him ask of me, who giveth liberally and upbraideth not."

Let us rest our self-control on the belief that he is able to do all things; that he will do all things well; that even evil will work for the good of those who love *him;* that nothing can divide us from *his* love, and that even death can not hurt those who have a passport to a heavenly immortality.

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## INFLUENCE OF LOVE.

Love is the divine essence of our being; it flows from God into our souls, and is our life. As the sun of the natural world warms the flower into life and beauty, so does the spirit of man receive the warmth of will, which animates it into life and action, from the great fountain of Divine love.

"If love, then, is one of the essential principles of our being, and through us is to fashion other forms receptive of life, how all-important that we should understand its nature and quality!

"In the brute creation, this influx of love from God is a mere external sensation. Man, too, partakes of animal love; but with him there is also an inner love, which is spiritual and holy, as much above animal sensation, as the soul of man is above brute instinct And if this inner faculty be not cultivated and developed, man remains an animal, only exercising a rather superior understanding to other animals—dead to all the higher ends of his existence, but unfortunately too much alive to all low passions and propensities; for it is an immutable law of our creation, that we must love—there being no life without love—and when we close our souls to the Divine love, we become receptive of infernal love—for the lost spirits of the infernal regions love; but what do they love? all sin, and wickedness,

and uncleanliness. It behooves us, therefore, to search out and try our loves, whether they be divine or infernal. And as all sin comes from love of *self*, we should seek, above all things, the antidote to that which enslaves us to lust, to pride, to worldliness, and all uncharitableness.

This antidote, God, in his divine providence, has provided for us; first in our love for him, and secondly, in that beautiful love which links the soul of man to woman. It is this which awakens the soul truly to God, and through which He creates the angels. Will not this thought sanctify love with so heavenly an end, that in our inmost spirit we must feel and acknowledge its holiness?

But how is love an antidote to selfishness? I speak not of mere sensual love, but of that which is spiritual and true. When God gave woman to man, it was with a definite and divine purpose, that man in her might love himself, and thus be lifted out of his self-love. Through his senses, which join him to the visible material world, man begins to love. How often do we see this outward love glancing from the spirit-speaking eye of the young, when, in the spring-time and full joy of life, soul seeks soul, as the warbling bird doth its mate, and trills forth a love tone, and often thinks it hears its echo, when it has but struck upon a false sounding-board, that dull and heavy sound which comes to the aching heart full of disappointment. But if the true note of harmony has been trilled, how beautiful it is when man awakens from his dream of passion, and discovers that all the pride of his understanding is reflected in a softened, chastened, and more divine light in the love of the gentle being at his side; he finds his taste, his opinions, the thoughts and feelings of his own soul, appropriated by her; that all unconsciously, while he slept the deep sleep of love, from his own breast, a wife has been created "a helpmeet for him." How peculiarly she is his *own!* She is something wonderful to him; he no longer loves himself, or thinks of himself—in her centers all thought and all feeling. Then how beautifully turns that trusting, loving eye upon him—he is her wisdom, her glory, her happiness—she should learn of God through him—he may love God through her.

But, alas! how rare is the beautiful, truly spiritual union? How often the waning moon of an external love finds paired souls sundered, who are bound, the living to the dead, for this mortal life—vailing behind outward conventionalities their internal disunion, and that burdensome yoke that perhaps binds some almost angel to an ox! The dull beast of earth plods on, all unconscious and uncaring for that dear one who has been a refuge to him from the tempestuous and bereaving storms of life.

Love is the weapon which Omnipotence reserved to conquer rebel men when all the rest had failed; reason, he parries; fear, he answers blow to blow; future interest, he meets with present pleasure: but love, that sun against whose melting beams winter can not stand; that soft, subduing slumber which brings down the giant; there is not one human creature in a million, not a thousand men in all earth's domain, whose earthy hearts are hardened against love. "There needs no other proof that happiness is the most wholesome moral atmosphere, and that in which the morality of men is destined ultimately to thrive, than the elevation of soul, the religious aspiration which attends the first assurance, the first sober certainty of *true love.*" There is much of this religious aspiration amid all warmth of virtuous affections. There is latent love of God in the child that rests its cheek against the cheek of its mother, and clasps its arms about her neck. God is thanked, perhaps unconsciously, for the brightness of his earth, on a summer evening, when a brother and sister, who have long been separated, pour out their hearts to each other, and feel their course of thought brightening as they run. When the aged parent hears of the honors his children have won, or looks around on their innocent faces in the glory of his decline, his mind reverts to him who in them prescribed the purpose of his life, and bestowed his grace. But religious as is the mood of every affection, none is so devotional as that of love, especially so called. The soul is the very temple of adoration, of faith, of holy purity, of heroism, of charity. At such a moment, the human creature shoots up into the angel, strengthened, sustained, vivified, by that most mysterious power, union with another spirit, it feels itself on the way to victory over evil—sent out "conquering and to conquer." There is no other such crisis in human life. The philosopher may experience uncontrollable agitation in verifying his balancing system of worlds, feeling, perhaps, as if he actually saw the creative hand in the act of sending the planets forth on their everlasting way. But this philosopher, solitary seraph as he may be regarded amid a myriad of men, knows, at such a moment, no emotions so divine as that of the spirit becoming conscious that it is beloved, be it the poorest creature in his humble cottage, or the daughter of affluence in her luxury, or the poor mechanic who toils for his daily bread, or the man of letters musing by his fireside. The warrior about to strike his decisive blow for the liberties of a nation, however impressed with the solemnities of the hour, is not in a state of such lofty resolution, as those who by joining hearts are laying their joint hands on the wide realm of futurity for their own. The statesman, who, in the moment of success, feels that he has annihilated an entire class of social sins and woes, is not conscious of so holy

and so intimate a thankfulness as they who ascribe their redemption to a new and sovereign affection.

And these are many; they are in the corners of every land. "The statesman is the leader of a nation; the warrior is the grace of an age; the philosopher is the birth of a thousand years; but the lover, where is he not?" Wherever parents look around upon their children there he has been; wherever there are roofs under which men dwell wherever there is an atmosphere vibrating with human voices, there is the lover, and there is his lofty worship going on, unspeakable, but revealed in the brightness of the eye, the majesty of the presence, and the high temper of the discourse. Men have been ungrateful and perverse; they have done what they could to counteract, to debase this most heavenly influence of their lives, but the laws of their Maker are too strong, the benignity of their Father is too patent and fervent for their opposition to withstand, and true love continues and will continue to send up its homage, amid the meditations of every eventide, the busy hum of noon, and the songs of the morning stars. There is something soothing and delightful in the recollection of a pure-minded woman's affection; it is an oasis in the desert of a worldly man's life, to which his feelings turn for refreshment, when wearied with the unhallowed passions of this world; it is that heaven-born passion that binds us in prosperity, and links us more closely under adversity; it is a tenderness unutterable, which banishes every unhallowed thought, and leads us back to our primeval innocence. They know but little of this passion who deem it the offspring of sighs and protestations. These are but the husbandry which calls forth the common produce of common soils, the needful aliment of that great principle of nature, which alike peoples our cities, and our plains, our rivers, and the air we breathe. In many a heart, where it has never been awakened, lies the subtle essence, which, when touched by a kindred essence, starts at once into giant life. And how manifold are the channels through which that kindred essence works itself a passage to the sleeping mischief! A word, a look, a tone of the voice, one pressure of the hand, though a hundred have preceded it, a simple "good night," or a parting "God bless you!" from lips that have pronounced the words for months, shall, in a predestined moment, be like the spark that falls upon the nitrous heap, followed by instant combustion. And then what a revolution is effected! The eye sees not, the ear hears not, the mind perceives not, as it has been wont; a new being is created; the past is obliterated; nothing seems to remain of what was, and the very identity of the object by whom this delirium of all the faculties has been produced, is destroyed. We strive in vain to recall the mere man or woman we have known, in the

lover or mistress we now adore. Spell-bound in the fascination inthralled in the idolatry of suddenly awakened passions, we discover wisdom, wit, beauty, eloquence, grace, charms, benignity, and loveliness, where hitherto we at most had dim and visionary glimpses of their possible existence. All is transformed, and in a moment the heart creates its idol; all is sunshine. The graceful form flits before the imagination, and love with its genial warmth pours her incense upon the heart. Love, that cordial drop of bliss, that sovereign balm for every woe, as it is of the first enjoyment, so it is frequently the origin of our deepest distress. If it is placed upon an unworthy object, and the discovery is made too late, the heart can never know peace. Every hour increases the torments of reflection; and hope, that soothes the severest ills, is here turned into deep despair. Two souls that are sufficient to each other in sentiments, affections, passions, thoughts, all blending in love's harmony, are earth's most perfect reflection of heaven. Through them the angels come and go continually, on missions of love, to all the lower forms of creation It is the halo of heavenly visitors that vails the earth in such a golden glory, and makes every little flower smile its blessings upon lovers Nothing in life is so pure and devoted as woman's love. It is an unquenchable flame, the same constant and immaculate glow of feeling, whose undeniable touchstone is trial; her faithful heart is more devoted than the idolators of Mecca, and more priceless than the gems of Golconda. The world may put forth its anathemas; fortune may shower down its adversities, but in vain; still the unutterable ecstasies of this heaven-born passion are the idol of the human heart. With man, love is never a passion of such intensity and sincerity as with woman. She is a creature of sensibility, existing only in the outpourings and sympathies of her emotions. Every earthly blessing, nay, every heavenly hope, will be sacrificed for her affections. She will leave the sunny home of her childhood, the protecting roof of her kindred, forget the counsels of her aged father, the admonishing voice of that mother on whose bosom her head has been pillowed, forsake all she has clung to in her years of girlish simplicity, do all that woman can do consistently with honor, and throw herself into the arms of the man she idolizes.

Unrequited love with man is to him never a cause of perpetual misery. Other dreams will flow upon his imagination. The attractions of business, the meteors of ambition, or the pursuit of wealth, will win him away from his early infatuation. It is not thus with woman; although the scene may change, and years, long, withering, and lingering years, steal away the rose from the cheek of beauty; the ruins of a broken heart can not be reanimated: the memories of

that idol vision can not be obliterated from the soul. She pines away again until her gentle spirit bids adieu to the treacheries of earth, and flits away into the bosom of her God. There is this difference between a woman's love and a man's: his passion may lead him, in the first instance, to act in opposition to opinion, but its influence is soon suspended, and a sneer or a censure will wound his pride and weaken his love. A woman's heart, on the contrary, reposes more on itself, and a fault found in the object of her attachment is resented as an injury—she is angered, not altered.

There is such a thing as love at first sight, deny it who may; and it is not necessarily a light or transitory feeling because it is sudden. Impressions are often made as indelibly by a glance, as some that grow from imperceptible beginnings, till they become incorporated with our nature. Is not the fixed law of the universe, as illustrated by the magnetic needle, a guarantee for the existence of attraction? And who will say it is not of Divine origin? The passion of love is similar, when of a genuine kind. Reason and appreciation of character may on longer acquaintance deepen the impressions, "as streams their channels deeper wear," but the seal is set by a higher power than human will, and gives the stamp of happiness or misery to a whole life.

I can not but add, how truly deplorable it is that a passion which constitutes the most noble trait in human nature, should now everywhere be trampled upon by avarice. I trust I shall not witness, as our country advances, such instances of legal prostitution as have occurred in some other parts of the world.

I distinguish four seasons of love: first comes love before betrothal, or spring; then comes the summer, more ardent and fierce, which lasts from the betrothal to the altar; the third, the richly-laden, soft and dreamy autumn—the honey-moon, and after it the winter, bright, clear winter, when you take shelter by your fireside, from the cold world without, and find every pleasure there.

And then there is that love "which passeth all understanding," which emanates from God himself, filling us with exceeding joy, that shall never wear away; like a tender flower, planted in the fertile soil of the heart, it grows, expanding its foliage and imparting its fragrance to all around, till transplanted, it is set to bloom in perpetual love and unfading brightness in the paradise of God.

Follow the Star of Bethlehem, the bright and the morning star—the guide to him who in his love gave his dear life for us—it will light you through every labyrinth in the wilderness of life, gild the gloom that will gather around you in a dying hour, and bring you safe over the tempestuous Jordan of death, into the haven of promised and settled rest, to enjoy that love which shall abide forever.

## RELIGION.

RELIGION is a most cheerful and happy thing to practice, but a most sad and melancholy thing to neglect. The government of God in the soul is a government which regulates, but does not enslave. If we seriously consider what religion is, we shall find the saying of the wise King Solomon to be unexceptionably true: "Her ways are ways of pleasantness, and all her paths are peace." The idea that religion is a kind of slavery, to which none can submit without sacrificing the natural enjoyments of life, has ever been the greatest hindrance to its advancement among mankind. How much wiser and better should we be if we could carry along with us, from infancy to old age, the full conviction that happiness is the substantial cultivation and exercise of the Christian virtues, and that piety is the firmest basis of morality, securing first God's claims, and by so doing securing our own! For, without the belief and hope offered by Divine revelation, the circumstances of man are extremely forlorn. He finds himself placed here as a stranger in a vast universe, where the powers and operations of nature are very imperfectly known; where both the beginnings and the issues of things are involved in mysterious darkness; where he is unable to discover with any certainty whence he sprung, or for what purpose he was brought into this state of existence; whether he be subjected to the government of a mild or a wrathful ruler; what construction he is to put on many of the dispensations of his providence; and what his fate is to be when he departs hence. What a disconsolate situation to a serious, inquiring mind! The greater the degree of virtue it possesses, the more its sensibility is likely to be oppressed by this burden of laboring thought, even though it were in one's power to banish all uneasy thought and fill up the hours of life with perpetual amusement; life so filled up, would, upon reflection, appear poor and trivial. But these are far from being the terms upon which man was brought into the world. He is conscious that his being is frail and feeble; he sees himself beset with various dangers, and is exposed to many a melancholy apprehension from the evils which he may have to encounter. To reveal to him such discoveries of the Supreme Being as the Christian religion affords, is to reveal to him a father and a friend, and to let in a ray of the most cheering light upon the darkness of his mind. He who was before a destitute wanderer in the inhospitable desert, has now gained a shelter from the bitter and inclement blast. He has found a heavenly father to whom he can pray, and in whom to trust, where to inbosom his sorrows, and from what hand to look for relief. It is certain that when the heart bleeds from some wound of recent

misfortune, nothing is of equal efficacy with religious comfort. Blessed be God for that religion that has power to enlighten the darkest hour of life, and to assuage the severest woes, and to afford the hope of a blessed immortality.

As the silent dews of night fall upon the flowers, and revive their drooping leaves, so does religion, in hours of affliction, revive the spirits and solace the wounded heart—that blessed assurance tha gives us strength for all our trials, that takes from misery its bitterness, and strips affliction of its sting. Vain and unprofitable, then, are all earthly advantages. "There is but one thing necessary." The love of God in the heart; it is the fountain from which three streams of virtue will not fail to issue—devotion, self-government, and benevolence. Religion is the soul of love—it is an intuitive light and evidence of what is not to be proved, but which can not deceive—a light which lights us through a thorny path on earth, and at the close of life lights us to heaven. The beauty of a religious life is one of its greatest recommendations. "What does it profess? Peace to all mankind." It teaches us those ways which will render us beloved and respected, which will contribute to our present comfort as well as our future happiness. Its greatest ornament is charity—it inculcates nothing but love and simplicity of affection; it breathes nothing but the purest delight; it is that pure, invaluable gem which shines brightest in adversity; it is the possession of this sterling jewel that imparts a stimulating impulse to the heart of man; it is the gentle spirit that leads us to another and a better world; it serves as a consolation when mankind desert us, and the cheerless hand of sorrow is placed upon our brow; its magic influence calms the ruffled scenes of life, and makes them glide peacefully away; it soothes the mind in its last hours, removes the sting of death, and gives assurance of the passport of the soul to an endless life of happiness and bliss. The power of religious consolation is sensibly felt upon the approach of death, and blessed be God, for his affording me an opportunity, in a thousand instances, of witnessing the manifestations of His love in this trying hour, when the last words uttered were, "Glory! glory! glory!" and without a sigh, or a struggle, they fell asleep in Jesus. It is in moments like these that religion appears in the most striking light, exhibiting the high value of the disclosures made by the gospel; not only life and immortality revealed, but a mediator with God discovered, mercy proclaimed through him to the frailties of the penitent and humble, and his presence promised them when they are passing through the valley of the shadow of death, in order to bring them safe into unseen habitations of rest and joy.

Here is ground for their leaving the world with comfort and peace.

But in this severe and trying period, this laboring hour of nature, how shall the unhappy man support himself, who knows not, or believes not, the truths of religion? His conscience tells him that he has not acted his part as he ought to have done; his sins arise before him in sad remembrance. He wishes to exist after death, and yet dreads that existence. God is unknown. He can not see whether every endeavor to obtain His mercy may not be in vain. All is dark and mysterious before him, and not a ray of light shines upon his benighted mind; in the midst of endless doubts the trembling, reluctant soul is forced away to the presence of its Judge. As the misfortunes of life must, to such a man, have been most oppressive, so its end is bitter; his sun sets in a dark cloud, and the night of death closes over his head full of misery. When man temporarily forgets the concerns of the world, and yields the reins of a fervid imagination into the guidance of an unknown power, the past scenes of his visionary life flit across his mind as a dream. The first mental inquiry that presents itself is, whether the prospects of this world are so precarious; whether the pleasures of this life are so transient; whether the mutability of human events causes us to feel that no confidence can be reposed in them, to what resource shall we apply, to become possessed of some secure dependence to support and buoy us up in the hour of trouble? Nature and reason reveal the healing consolation of that blessed religion, light of the world, sole hope of a ruined race, the renovating principle, which restores life and beauty where all was corruption and deformity.

The mind of man, like the fluctuating sea, is never at rest. There is a perpetual tendency, which can not be curbed by perpetual disappointment, to send out the desires after some object beyond our present reach. But we are never satisfied by the attainment of any present desires. The law of the natural world, by which objects diminish according to their distance from us, is not observed in the moral The objects of our wishes are magnified in proportion to the distance at which we view them. As we approach, the charm is broken, the illusion vanishes; they prove to be but bubbles, which, as soon as touched, dissolve into airy vapor. Still we do not rest. At every fresh disappointment we put forth new desires and new efforts for the attainment of some object yet more remote. Even success the most unbounded does not satisfy us; we weep for more worlds to conquer.

Amid this tumult of the mind, this everlasting restlessness of the soul, Religion, benign visitor, heavenly monitor, descends to man. She comes in radiant and alluring form, and addresses him in accents of winning tenderness: Receive me, and I will say to the swelling surges of passion, peace! be still. I will quell the fever of disappoint-

ment by leading you to the fountain of living waters. I will point you to the shadow of a great rock in a weary land. Receive me, oh! thou on whom the Son of God looked with tenderness, and I will direct you to an object of pursuit worthy your heavenly origin, worthy of your nature—but little lower than that of angels—worthy the inward springs of which you are proudly yet painfully conscious You love pursuit; the object to which I will direct you is infinite therefore your pursuit will be endless. You delight in progress; her your progress will be commensurate with eternity. Your desires are boundless; you shall be *satisfied* when you awake in the likeness of God. Verily, you shall be frequently filled in this house of your pilgrimage with pre-libations of pure blessedness. Receive me, and you shall never fear what your nature so revolts at: a cessation of hope, expectation, and effort; for your capacity shall be forever increasing, and forever filling with all the fullness of God; throughout the immortality of her existence, your soul shall be continually expanding her views, strengthening her energies, and drinking deeper and deeper of the river of pleasure, which flows at the right hand of the Most High.

Such are the boundless offers of Religion; all that man can desire, all that his nature can receive, more than his utmost powers of apprehension can reach.

This is the most important subject that can interest the attention of man; infinitely more so than the great questions of human policy, which awaken the energies of the statesman, and arouse the wisdom of a nation; for the effects of religion are felt in this world amid all the vicissitudes of fortune, and they extend, beside, into the grave into the very depths of eternity; that which interests the immortal spirit, which will decide its destiny during eternity, is so far above the petty considerations which agitate the world, that no comparison can be drawn between them.

Christianity enters the hut of the poor man and sits down with him and his children; it makes them contented in the midst of privations, and leaves behind an everlasting blessing. It walks through cities, and amid all their pomp and splendor, their towering pride and their unutterable misery, is a purifying, ennobling, and redeeming angel. It is alike the beautiful companion of childhood, and the comforting assurance of age. It adds dignity to the noble, gives wisdom to the wise, and new grace to the lovely.

The patriot, the minister, the poet, and the eloquent man, all derive their sublime power from its influence. It can not be that earth is man's abiding place. It can not be that our lives are cast up by the ocean of eternity, to float a moment upon its waves and sink into

nothingness. Else why is it that the high and glorious aspirations which leap like angels from the temples of our hearts, are forever wandering about dissatisfied? Why is it that the rainbow and cloud come over us with a beauty not of earth, and then pass off and leave us to muse upon their faded loveliness? Why is it the stars that hold their festival around the midnight throne are set above the grasp of our limited faculties, forever mocking us with their unapproachable glory? And finally, why is it that brighter forms of human beauty are presented to our view and taken away from us, leaving the thousand streams of our affection to flow back in Alpine torrents upon our hearts? We are born for a higher destiny than that of earth! There is a realm where the rainbow never fades, where the stars will spread out before us like islands that slumber on the ocean; and where the beautiful beings, which here pass before us like shadows, will stay in our presence forever. "In *Heaven* there is rest!" It is a truth deeply impressed on the mind of every man, and familiar even to the most thoughtless, that in this life there is to be found but little rest; there is always something to disturb, excite, perplex, disappoint, weary us. The rosy-cheeked infant, the curly-headed boy, the blooming beauty, the man of business, and they of threescore and ten, all appear restless and dissatisfied. Some are unhappy for the want or the loss of friends or relations, of health or pleasure, of riches or employment; thousands of others suffer from a guilty conscience, the result of crime, and from the fears of a future judgment. But though the Christian may feel the effects of sin and suffer from sickness and bereavement, yet the assurance of rest in Heaven cheers and comforts him amid all the sorrows and afflictions of time.

"In Heaven there is rest." There will be rest from sin, from sorrow, and from sickness; rest from troubles, and trials, and temptations; there will be no false or treacherous friends, no deceitful associates, no unkind relations, no bitter enemies. There the *mind* shall be no longer oppressed by cares and anxieties, nor overburdened with difficulties. There will be no sleepless nights, no wearisome days, no secret sighs, no bitter groans, no scalding tears, no unrequited love, no sundering of tender ties, no parting with those we love, no fear of disease, no suffering from pain, no dread of death, no dark and gloomy grave; but all will be sweet and undisturbed repose—all will be peace, happiness, and love. Like the leaves of the forest, we come forth in beauty, pass on with the summer, and then sink to the earth. A few days only and the rose fades from the cheek, the limbs are palsied, and our forms mingle with the dust.

"I envy no quality of the mind or intellect in others, be it genius, power, wit, or fancy; but if I could choose what would be most

delightful, and I believe most useful to me, I should prefer a firm religious belief to every other blessing; for it makes life a discipline of goodness, creates new hopes, when all earthly ones vanish, and throws over the ending of earthly existence the most gorgeous of all lights, awakens life even in death; from corruption and decay calls up beauty and divinity, makes an instrument of torture and shame the ladder of ascent to paradise; and far above all combinations of earthly hopes, calls up the most delightful visions of palms and amaranths the gardens of the blest, the security of everlasting joys, where the sensualist and the skeptic view only gloom, decay, annihilation, and despair."

Religion! It is not an abstraction. It is not ideal; living only in the brain, and leaving the heart untouched. It does not consist in peculiar frames of mind, in the excitements of animal feeling, or the overflow of these sensibilities, in the kindling of the fancy, or the heating of the imagination. It lives, not merely in visible manifestations of devotion, in the bowing of the knee, the lifting of the hands, in long prayers, in long drawn sighs, or in long cadaverous faces. All these may be without religion, and religion may exist without *them*. Religion shows itself in benevolent action, flowing forth from holy motives. It is that charity which "hopeth all things, believeth all things," yet contents not itself with a "be ye warmed, be ye clothed," but performs the good which it desires. It is that love which embraces all human kind, loving its neighbor as itself. It is that benevolence, which, like a river of good, gushing from a pure fountain, flows freely forth to all, spreading beauty and blessedness around, causing the desolate places of the earth to rejoice, and making the wilderness to bud and blossom as the rose. It knows not the lust of power. It seeks not its own preferment. Its kingdom is not of this world. It is too high to envy the proudest, too meek to despise the humblest. It hath no fellowship with bigotry. It despiseth not its brother because he differeth in opinion. Its creed is, "Do justice, love mercy, and walk humbly before God." Its sect is, "The pure in heart." Its temple of worship is the universe. It is a transcript of Him who spent his life in doing good. It is the spirit of God living in the human heart.

He is the Christian for us, who is always ready to take out his purse and assist the needy; who visits the widow and the fatherless, and keeps "himself unspotted from the world;" who is never at a loss to speak in their affliction, when pleasant words are more valuable than gold. God honors such a soul—angels hover about his path, and devils tremble before him. Such a man is worth to humanity and

religion fourscore of those long-faced, whining hypocrites, who tell what they would do, but are never ready to obey the dictates of common humanity. Give us an army of the truly kind-hearted and benevolent Christians, and we will pledge ourselves to march through the world, conquering and subduing, and bring about that day when wars and bickerings shall cease, and earth resemble heaven. "Charity covereth a multitude of sins." But there are more ways than one of showing kindness to the unfortunate. No doubt the giving of money and other helps are often of very great moment; but there is another kind of charity which is cheaper, and of which we should not be forgetful, lest we should exclaim, "Thank God, I am not as other men." Do not turn the man off, who, in the hour of temptation, yielded to a first fault; bear with him yet a little longer; give him another trial; while you condemn his mis-step, encourage him to good deeds for the future. If you cast him off forever, he may reel blindly and continue to fall until ruin shall have fixed her seal permanently upon him. Be charitable—make due allowance for the weakness of poor humanity. A gentle word, a kind look, an encouraging smile, may save a human being from the abyss of despair. How sweet is the remembrance of a kind act; as we rest on our pillows, or rise in the morning, it gives us delight; we have performed a good deed to a poor man; we have made the widow's heart to rejoice; we have dried the orphan's tears—sweet, oh! how sweet the thought! There is a luxury in remembering the kind act. A storm careers above our heads: all is black as midnight—but the sunshine is in our bosom, the warmth is felt there. The kind act rejoiceth the heart, and giveth delight inexpressible. Who will not be kind? Who will not do good? Who will not visit those who are afflicted in body and mind?

Blessed be God for that Religion which supports us amid the distresses of life, and sustains us in the hour of death. How dark this world would be, if, when deceived and wounded here, we could not fly to our Heavenly Father, who is always ready to dry the mourner's tears, and still the troubled heart! Here it incontestably triumphs, and its happy effects, in this respect, furnish a strong inducement to every benevolent mind, to aid in having its influence diffused throughout the world. On such hopes the mind expatiates with joy, and when bereaved of its earthly friends, solaces itself with thoughts of a friend who will never forsake it.

Refined reasonings concerning the nature of the human condition, and the improvements which philosophy teaches us to make of every event, may entertain the mind when it is at ease; may, perhaps, contribute to soothe it when slightly touched with sorrow; but when

it is torn with any sore distress, they are cold and feeble, compared with a direct promise from the word of God.

"This is an anchor to the soul, both sure and steadfast." This has given consolation and refuge to many a virtuous heart, at a time when the most cogent reasonings would have proved utterly unavailing

Then consult your own conscience: what does she say is the great end of life? Listen to her voice in the chambers of your own heart She tells you that there is only one stream that is pure, and that stream flows from the throne of God; but one aim is noble and worthy of an immortal spirit, and that is to become the friend of God, so that the soul may wing her way over the grave without fear, without dismay, without condemnation. There is only one path passing over the earth which is safe, which is right, which is honorable. It is that which Jesus Christ has marked out in His word, and which leads to glory. Let conscience speak when you are tempted to waste a day or an hour, or to commit any known sin, to neglect any known duty, and she will urge you, by all the high and holy motives of eternity, to live for God, to give your powers to him, to seek his honor in all that you do.

We pity the man who has no religion in his heart; no high and irresistible yearning after a better and a holier existence; who is contented with the sensuality and grossness of earth; whose spirit never revolts at the darkness of its prison-house, nor exults at the thoughts of its final emancipation. We pity him, for he affords no evidence of his high origin, no manifestation of that intellectual prerogative, which renders him the delegated lord of the visible creation. He can rank no higher than the animal; the spiritual nature could never stoop so low. To seek for beastly excitements—to minister with a bountiful hand to depraved and strong appetites—are attributes of the animal alone. To limit our hopes and aspirations to this world, is like remaining forever in the place of our birth without ever lifting the vail of the visible horizon which bent over our infancy.

There is religion in every thing around us—a calm and holy religion in the unbreathing things of nature—which man would do well to imitate. It is a meek and blessed influence, stealing in, as it were, unawares upon the heart. It comes quietly and without excitement. It has no terror, no gloom in its approaches. It does not rouse the passions; it is untrammeled by creeds, and unshadowed by the superstitions of man. It is fresh from the hands of its author; and glowing from the immediate presence of the Great Spirit, which pervades and quickens it. It is written on the arched sky. It looks out from every star. It is on the sailing cloud, and in the invisible wind. It is

among the hills and valleys of earth—where the shrubless mountain tops pierce the thin atmosphere of eternal winter, or where the mighty forest fluctuates before the strong wind, with its dark waves of green foliage. It is spread out like a legible language upon the broad face of the unsleeping ocean. It is the poetry of nature. It is this which uplifts the spirit within us, until it is tall enough to overlook the shadows of our place of probation; which breaks, link after link, the chain which binds us to materiality; and which opens to our imagination a world of spiritual beauty and holiness. Witness the influence of pure religion upon those who walk in the ways of righteousness, looking to the end of time for the fulfillment of God's own purposes. True faith fills society with happy hearts and smiling faces; fanaticism crowds the asylums with lunatics, and the streets with deranged mendicants. Eternity contemplated afar off, through the medium of faith and hope, reveals the abode of the just made perfect; when brought too near by an excited imagination, it may palsy the mind with fear and dethrone reason by its appalling terror. Blessed are they who so improve life's little space, that the autumn of existence and even the hand of death may approach without exciting an emotion of regret or a shade of fear.

The following is the closing paragraph of the will of Patrick Henry: "I have now disposed of all my property to my family; there is one thing more I wish I could give them, and that is the Christian religion. If they had this, and I had not given them one shilling, they would be rich; and if they had it not, and I had given them all the world, they would be poor." This opinion of that celebrated man confirms the importance of religion in a dying hour. He was only answering the question propounded by the author of our holy religion, "What shall it profit a man if he gain the whole world and lose his own soul?"

Christ re-established the unity of human nature. He taught us the principles of eternal justice, and the grand secret of all harmony and happiness on earth as in heaven—love. Till we arrive at that point of his system, we are unacquainted with Christianity, and ignorant of our natures and our destinies. The dogmas and the mysteries that many disciples have wrapped around this glorious sun of the Christian system—this all-embracing sentiment of universal love—have tended to obscure its light from us, and to screen from us its vital warmth. The gospel does not consist in doctrines and ceremonies alone, but in love. But to love, we must know who are worthy of our love; and here again the revelation of Christ teaches us that "Thou shalt love thy neighbor as thyself." And then comes

the question, "Who is my neighbor?" and the answer expressed in an immortal story was, "Every one who needs thy help."

Bishop Butler, when on his death-bed, observed, "that though he had endeavored to avoid sin and please God, yet, from the consciousness which he felt of perpetual infirmities, he was still afraid to die." "My dear friend," said a poor but pious man, who was in the room with him, "you have forgotten that *Jesus Christ* is a Saviour." "True," was the answer, "but how shall I know that he is a *Saviour* for me?" "My dear Bishop, it is written, 'He that cometh unto me I will in nowise cast out.'" "True," replied the Bishop, with joy depicted in his countenance, "I am surprised that, though I have read the Scriptures a thousand times over, I never felt its virtues till this moment, and, blessed be God, I now die happy."

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## AFFECTION

The Mother's Affection. Alas! how little do we appreciate a mother's tenderness while living! How heedless are we in youth of all her anxieties and kindness! But when she is dead and gone—when the cares and coldness of the world come withering to our hearts—when we know how hard it is to find true sympathy, how few love us for ourselves, how few will befriend us in our misfortunes, then it is that we think of the mother that we have lost. It is true, I had always loved my mother, even in my most heedless days of infancy, when I was led by a mother's hand and rocked to sleep in a mother's arms, and was without care or sorrow. "Oh! my mother!" exclaimed I, burying my face again in the grass of the grave, "Oh! that I were once more by your side, sleeping, never to wake again on the cares and troubles of this world."

Scarcely a day passes that we do not hear of the loveliness of woman, the affection of a sister, or the devotedness of a wife, and it is the remembrance of such things that cheers and comforts the dreariest hours of life, yet a mother's love far exceeds them in strength, in disinterestedness, and in purity. The child of her bosom may have forsaken and left her, he may have disregarded all her instructions and warnings, he may have become an outcast from society, and none may care for or notice him, yet his mother changes not, nor is her love weakened, and for him her prayers still ascend.

Sickness may weary other friends, misfortunes drive away familiar acquaintances, and poverty leave none to lean upon, yet they affect

not a mother's love, but only call into exercise, in a still greater degree, her tenderness and affection.

The mother has duties to perform which are weighty and responsible; the lisping infant must be taught how to live, the thoughtless child must be instructed in wisdom's ways, the tempted youth must be advised and warned, the dangers and difficulties of life must be pointed out, and lessons of virtue must be impressed on the mind Her words, acts, faults, frailties, and temper, are all noticed by those who surround her, and impressions made in the nursery exert a more powerful influence in forming the character of youth, than do any later instructions.

If passions are unrestrained, if truth is not adhered to, if consistency is not seen, if there be a want of affection, or a murmuring at the dispensations of Providence, the youthful mind will receive the impression, and subsequent life will develop it. But if all is purity, sincerity, truth, contentment, and love, then will the result be a blessing, and many will rejoice in the example and influence of the pious mother.

There is something in sickness that breaks down the pride of manhood, that softens the heart, and brings it back to the feelings of infancy. Who that has languished, even in advanced life, in sickness and despondency, that has pined on a weary bed, in the neglect and loneliness of a foreign land, but has thought of the mother that looked on his childhood, that smoothed his pillow, and administered to his helplessness? Oh! there is an enduring tenderness in the love of a mother to a son that transcends all other affections of the heart. It is neither to be chilled by selfishness, nor daunted by danger, nor weakened by worthlessness, nor stifled by ingratitude. She will sacrifice every comfort to his convenience; she will surrender every pleasure to his enjoyment; she will glory in his fame and exult in his prosperity. If adversity overtake him, he will be dearer to her by misfortune; if disgrace settle upon his name, she will still love and cherish him; and if all the world beside cast him off, she will be all the world to him. Round the idea of one's mother the mind of a man clings with fond affection. It is the first deep thought stamped upon our infant hearts, when yet soft and capable of receiving the most profound impressions, and all the after feelings of the world are more or less light in comparison. Even in our old age we look back to that object of our filial love, and remember, with deep regret, how often we have violated her commands and neglected her affectionate counsels; but when death has stilled her monitory voice, and nothing but calm memory remains to recapitulate her virtues and affections, be sure that every unkind



AFFECTION.

look, every ungracious word, every improper action, will come rushing back upon memory, and, knocking dolefully at the heart, will tell us of our ingratitude.

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## FEAR.

It is well known that the depressing emotions of fear, despair, etc. produce a liability to disease under circumstances in themselves harmless. For example, persons who entertain great apprehension of disease are more apt to take it. During the cholera hundreds were seized by this complaint who might otherwise have escaped, as many died of fear, and many died in my presence entirely under the influence of the imagination. Sir George Bolingwell, in his valuable medical work, states that about four per cent. is the usual proportion of sick, who die, though really healthy, from the effects of fear, and that such are the beneficial effects of success and cheerfulness, that in the French army, after the battle of Austerlitz, there were only one hundred invalids in a division of eight thousand, or only one to eighty. Impressions are often made on the minds of children of so appalling a nature that they never recover from the shock. Though of a fearless disposition as regards even the most awful of the ordinary causes of terror, they will exhibit through life a very noticeable cowardice whenever brought into contact with the object of their childish dread. I have known men who would be the first to plant a standard on a hostile fort, or board a vessel, fighting hand to hand with the enemy, and yet would turn pale with affright at the idea of passing a churchyard alone in a dark night, or even at entering a dark room. Marshal Saxe, one of the bravest men who ever commanded an army on the battle-field, would never retire to rest until he had carefully examined the closets in his chamber, and looked under the bed. There is nothing more dangerous and often more fatal, in its effects, than the habit of terrifying children in order to punish them for misconduct.

A small girl, only seven years of age, for some childish act of disobedience was thrust into a dark cellar at some distance from the house, and suffered to remain there through the night. The dreadful cries and screams which the child uttered produced no effect on the cruel and imprudent parents, and when the door was opened in the morning the unfortunate child was an idiot. All medical assistance proved unsuccessful in her case, and she is now a living spectacle, in New York, of the cruelty and ignorance of this unfeeling and miserable family.

There is nothing more abominable than the system adopted by some parents and instructors of small children, of frightening them by way of punishment. In this way great evils are often produced. It is, indeed, assuredly the case that sudden shocks of fear, when administered to children for the sake of a joke, are not unfrequently attended with most serious consequences, as in the case of a child, in Virginia, who was frightened to death. The circumstances which led to this melancholy catastrophe, are not of unusual occurrence. The child was playing with its companions and was told by them, in sport, that a rag man was about to carry him off in his bag. Alarmed with fear, the child ran into the house, when the object of his terror unfortunately coming into the house also, he uttered a shriek and instantly expired. This is not the first nor only instance of the fatal consequences of fright upon children, and even upon adults peculiarly susceptible of fear. An English paper contains the following paragraph: "A girl named Margaret Pete, in order to amuse some companions, dressed herself in a white garment and put on a hideous black mask, in which disguise issuing suddenly from her residence in Palmer's Folly, Ratcliffe Highway, London, she caused so much terror to a child that it died on the following (Friday) morning. The girl was taken into custody and detained till after the coroner's inquest, when she was reprimanded and discharged." Indeed, cases are known in which young persons have had their minds entirely overthrown and been doomed to lives of idiocy by the unprincipled follies of their acquaintances, who have devised and executed some cruel plan of making sport of their fears. Such conduct has no apology. Those who are guilty of it should be held accountable, as the man who levels a deadly weapon at the life of a fellow-creature. And yet this attempt to excite the fears of a child is not unfrequently resorted to by parents, as a salutary punishment. Bug-bears are created to frighten the young innocent into obedience. This is unphilosophical, and in the highest degree barbarous in its nature, often entailing wretchedness in the shape of unnecessary fears on the being whose courage and determination should be fortified and strengthened, instead of being sapped and destroyed by the unnatural and unthinking parent. It sometimes happens that persons, who, for the sake of a good practical joke, in attempting to frighten others, get sadly frightened themselves, or in some other way receive a punishment which they richly deserve. A case is related in the *Medical Journal*, of a young man in the country, who, on learning that some frolicsome girls intended going into a neighboring cornfield one evening to get some ears of corn to roast, determined to frighten them. He accordingly wrapped around his figure a white sheet to represent a

ghost, and parting from his associates, proceeded toward the field in high glee. What he had beheld or met with to excite his fears was never known, but he was soon heard to utter a loud scream, and was soon after seen, still wrapped in the white sheet, running with great rapidity through the fields. At last he reached the house, absolutely frightened out of his senses. He was attacked with epileptic fits, which afterward succeeded each other rapidly. When these fits would return upon him, he seemed much terrified at some imaginary object, and would beg and entreat to have it taken away.

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## ANGER.

ANGER is a violent emotion of the mind, arising from an injury either real or imaginary, which openly vents itself against the offending party. These gusts of temper are often productive of the most dreadful consequences, and those who give way to this spirit, rapidly destroy their constitution, by impairing the nervous system, weakening the energies of the brain, and often producing apoplexy, or sudden death. So nicely and wonderfully are we made, that all the internal feelings have a strong influence upon the body. The truth of this observation is evident from the effects produced upon those who give way to this brutal rage, degenerating from every noble sentiment to an indulgence in that which so often produces the most demoralizing effects. The passionate man when under its influence becomes incapable of distinguishing right from wrong. As an idiot or a madman, he is carried away by the impulse of the moment, a caprice of the imagination; as violent as a gust of wind, he rashly determines his conduct, and hurries to the perpetration of actions, which, in his calmer moments, strike him with remorse. Behold that countenance under the influence of passion; it wears the strongest and most visible marks of its uncontrollable power; all the nerves are put into the most violent agitation, the frame is continually shattered by its repeated attacks, and not unfrequently it destroys the vital powers. Anger, as it proceeds originally from the mind, ruffles that as well as the body; the calm and quiet affections, which diffuse peace and joy around, fly at its approach, and are succeeded by a black train of evil passions which carry their own punishment, by inflicting the most bitter torment. Nor do the ill effects subside when anger ceases; the mind, like the raging sea, still continues in a state of agitation, though the winds have abated.

It has been argued that anger is the consequence of a peculiar frame

of the body, but this is a simple argument, as it is in the power of every one to control his passions if he is but watchful. It was a memorable saying of Peter the Great, "I have civilized my country, but I can not civilize myself." He was at times vehement and impetuous, and committed under the impulse of his fury the most unwarrantable excesses, yet we learn that even he was known to tame his anger, and to rise superior to the violence of his passions. Being one evening in a select company where something was said that gave him great offense, his rage suddenly kindled and rose to the utmost pitch; though he could not command his first emotions, he had resolution enough to leave the company. He walked bareheaded for some time under the most violent agitation, in an intense frosty air, stamping on the ground, and beating his head with all the marks of the greatest fury and passion, and did not return to the company until he was quite composed. Let not any one say, he can not govern his passions nor hinder them from breaking out and carrying him into action; for what he can do before a prince or a great man he can do alone or in the presence of God if he will.

"Be not hasty in thy spirit to anger, for anger resteth in the bosom of fools."—[*Solomon.*] There are some persons professing to be followers of the meek and lowly Jesus, who consider themselves licensed to fall into a paroxysm of anger, on any private occasion, and to abuse their neighbors, scold, cuff, and kick their servants and children, until the surplus amount of steam has been permitted to escape. Is this the spirit of Christ? Nay. Then verily they are none of his. Such a course of conduct grieves the spirit of God, and if continued in, will destroy peace of mind, weaken the intellect, and make the body, which should be a temple for the indwelling of the Holy Spirit, a foul cage, fit only for the habitation of every unclean bird. Did not He who said, "Thou shalt not kill," say, "Be not given to anger?" Why, then, are we privileged to do the one and not the other? Be not deceived, brethren, God is not mocked; "he that soweth to the flesh, shall of the flesh reap corruption;" "a stone is heavy and the sand is weighty, but a fool's wrath is heavier than them both;" "wrath is cruel, and anger is outrageous;" therefore, let us govern our tempers, be kind, gentle and forbearing to all, and in all our domestic concerns, let our smiles and kind words gladden the hearts of those that are made dear to us by the ties of earth and heaven. In ministering to the happiness of others, we shall secure our own; but by being fretful and passionate, we render ourselves miserable and all those with whom we associate. Reader, if you are kind, gentle, and affable in deportment to all, you are blessed; if you are not so at all times, try the experiment, and God will bless your efforts with the richest cu-

of blessing. It may cost you many days, even years of toil, to overcome this soul-destroying enemy; yet "God will bring you off conqueror, and more than conqueror through him that loved us, and gave himself for us." But if you strive not, and gain not the victory, for these things God will bring you into judgment, and where he is, you can never come. Have a care every day, that nothing put you into a passion; do nothing with an over-eagerness of mind; and be ever on your guard against sudden accidents. And this can never be obtained, but by committing yourself and your affairs into God's hand and care every day; believing that He governs all things wisely, and will ever do that which is best for you.

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## HOPE.

THERE is not a word in our language which has more numerous or more pleasant associations than *Hope*. With its sound, even as it falls on the ear, we are accustomed to link all the grateful emotions and joyful sensations which its indulgence never fails to impart, and on account of which it is considered one of the dearest that man can possess. Wherever we turn our eyes among mankind, we see the influence of HOPE.

It begins with the first dawning of reason, and ends only with life itself. Before the eye of youth, hope spreads the future, clothed in all the glowing colors of imagination; it promises him happiness, honor and fame, and tells him that his most ardent expectations shall be more than realized. Would he climb the hill of science and stand first among her votaries, hope whispers in his ear that nothing can be more easy. Does he long for wealth, hope says it shall be his. Would he be a distinguished man, and have his name written on the pages of history, hope tells him that this, and more than this, shall be attained. It is hope that imparts to youth half its happiness and vivacity, and to age a blessed assurance. Take it away, and you leave a blank which it would be impossible to fill.

If we survey the busy world around us, we shall see no one who is not influenced, in one way or another, by this all-pervading emotion Each has some favorite object in view, which it leads him to believe he can accomplish. Each one is engaged in some occupation which he thinks most likely to aid him in accomplishing and realizing his wishes. Look at the man of business—see how entirely absorbed he seems to be in the pursuit of gain, with what anxious looks he hurries to and fro, and with what eagerness he embraces each oppor-

tunity of increasing his treasure. Watch the changing outlines of his troubled brow, and if you can read the thoughts thereon inscribed, you will find that the subject which is ever uppermost in his mind, is the hope of gain. The student, whose whole soul is in his studies, is found bending over his books from morning till night; he consumes the midnight oil in search of knowledge, and thus in his ardent thirst changes night into day. It is the hope of one day standing first in the ranks of literature that enables him to plod along from day to day, storing his mind with the choicest gems that learning can afford, even while he is admonished that disease is making encroachments upon his system.

Again: look at the man whose god is ambition. He may be a statesman, a warrior, or an author, it matters not; see with what perseverance he surmounts every obstacle that lies in his way to eminence, and how constantly he struggles on, it may be against persecution and bigotry, carefully removing every impediment, until finally he attains the summit of his hopes, and sees no one above him whose honors he can snatch. He looks proudly on, and views all his competitors toiling far below him, surveying with wistful eye the eminence on which his feet are securely placed. What is it, we may ask, that urges him forward? It is the hope of fame. In our adversities and troubles, when all whom we esteemed as our friends have forsaken us, hope displays its real value—it cheers us onward, gives us promises of better days, and whispers in our ears that all may yet be well.

The prisoner in his cell, who is, perhaps, to die on the morrow, still has hope, and it is not until the fatal rope has put an end to his existence, that it forsakes him. That aged sire, whose locks are whitened by the snows of fourscore winters, still thinks he may live a few years longer, and death's arrow may pierce his bosom while hope is still glowing there. One would think that old age, after having witnessed so many wishes unrealized, and expectations blasted, would no more listen to her syren song, but the dying man still clings to this eternal principle, this blissful passion, and as the lamp blazes brightest when gleaming its last, its spark flies heavenward, and is rekindled upon the altar of eternity.

Hope is the connecting link between the past and the future. It is a constant prophet, save that it always dresses out events to come in a gaudy attire, which fades and blackens when the wheels of time bring us to the consummation. Were it not for this earnest of the future, this principle implanted in the breast of man, he would have nothing for which to live, nothing to induce him to drag out a miserable existence. Never is hope so wild and imaginative, and we may

say deceitful too, as in youth; never so sober, so true, so stable, as in age.

Although hope is often delusive, yet in the greatest misery, the least flickering ray of sunshine pouring into the caverns of the heart, revives the drooping soul, and excites action, as when some precious gem under the sunbeam flashes its radiance round the darkened cell, and springs into multiplied existence. Then hope on, frail mortal, what though thy path be rugged and strewed with thorns? Thou hast only to persevere, and thy reward awaits thee. Many days and nights, perchance years, hast thou struggled with adversity. Thou hast said in thine heart, "Woe is me—wherefore was I born?" Hope then whispered, persevere! before thee lies thy reward. What though thou art poor, despised by those, it may be, who are thy inferiors in all save wealth! What matters it, that thy short life is exposed to the rude blasts of adverse fortune, if, at last, thou art crowned with immortality, which those who rudely push thee from them, think not of! Hope on, then, in thy poverty—be honest in thy humility—aspire to be truly great by being truly good. Hope carries its consoling rays into the recesses of the dungeon, smiles serenely on the bed of sickness, sustains in every period of life, and sheds its grateful radiance around the pillow of the dying. It blooms in every season of existence, and, like the evergreen, it preserves its verdure throughout the year. Hope is a secret instinct to draw our minds to future happiness.

Our Heavenly Father has given us a hope of that blessed immortality, where the troubles and cares of an unsatisfying world will forever cease, and the soft and balmy breath of an eternal spring soothe the spirit's soft repose in the haven of eternal rest, where we shall again meet with those on whom death laid his withering hand—the fairest buds of our earthly love expanded into lovely flowers, and hear again the voices of those dear ones who shared with us our earthly sorrows; a meeting that shall never be dissolved, a reunion in the presence of God, where death can never come, or rob us of our dearest friends.

How true, then, the sentiment of the apostle, that "Hope is an anchor to the soul!" How bright and beautiful is that hope that meets the shadowy future without fear, which comes to us amid storms and darkness, to tell us we have a friend in our dear Redeemer that will never forsake us in the hour of misfortune, sickness, or death! We feel the necessity, then, of that blessed hope, which sheds its balmy influence over the silence and loneliness of the human heart, and building up anew the broken altars of its faith and reviving again the drooping flowers of its desolate affections, in the hope of forgiveness, and in the promise of that blessed Saviour, who has

said, "He that believeth on me, though he were dead, yet shall he live."

But blessed be God that the righteous hath hope in his death, through His dear Son, our Lord and Saviour, Jesus Christ.

Contemplate, through the unnumbered saints that have died, the soul, the true and inextinguishable life of man, charmed away from this globe by celestial music and already respiring the gales of eternity. If we could assemble in one view all the adoring addresses to the Deity, all the declarations of faith in Jesus, all the gratulations of conscience, all the admonitions and benedictions of weeping friends, and all the gleams of opening glory, our souls would burn with the sentiment which made the wicked Baalam devout for a moment, and to exclaim, "Let me die the death of the righteous, and let my last end be like his;" and when *hope* shall fold her golden wings on earth, then shall we behold, through faith, that hope which grows stronger in death.

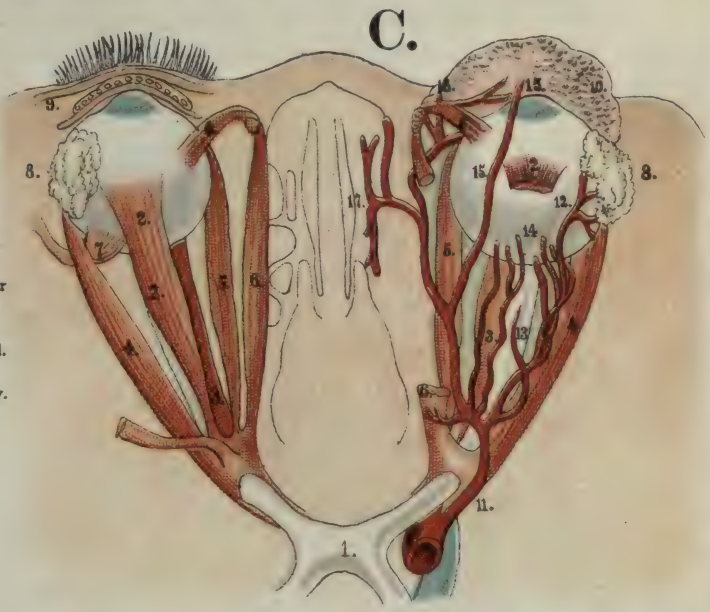
The venerable Matthew Wilkes called upon the Rev. John Wyatt, his colleague in the ministry, who was at the point of death. "Well, brother Wyatt," said the good old man, "I have sometimes heard you say in the pulpit, that if you had a hundred souls you could venture them all on Christ; can you say so now?" The dying saint, though worn nearly to a skeleton and almost suffocated with phlegm, made an effort to speak, and with his eyes almost flashing fire, replied, "Blessed be God, a million! a million!" and in a few moments he expired.

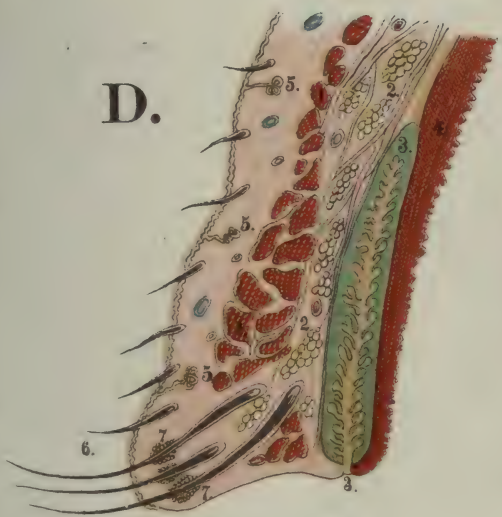
Without hope, how dreary would be the world; appearing to the care-worn pilgrim one wide desert, all the paths of which are surrounded with misery, beset with trouble, and embittered with sorrow! But hope lights us on our way; when darkness lowers and gloom oppresses, hope strengthens our faltering steps, collects our scattered senses, and presents to our view a pleasing prospect lying before and just within our reach; we spring forward with alacrity, and often pass our lives in eager pursuit, with as much pleasure as if we had attained the object of our wishes. Hope raises the sinking heart and restores the courage which begins to droop; and each time I feel the magic influence of her rays, I will bless thee, Oh! my God, and thank Thee for the daily benefits I receive, as well as for those reserved for me at a future time. Blessed forever be thy Divine mercy, which permits me to hope that when time here shall be no more, my glad soul shall quit these narrow confines, to repose in the bosom of its Creator, through the countless ages of eternity. Were it not for this certainty of immortality, this fond hope of eternal life and happiness, few would be the incitements to virtue, and weak the

# THE EYE.

## C—The two eye-balls and their muscles and arteries, as seen from above.

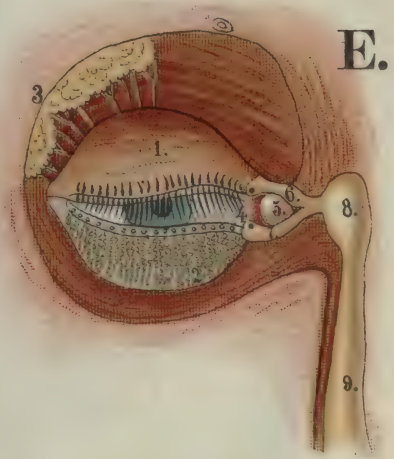
1. The cross of the optic nerve.
2. Upper straight eye muscle.
3. Lower straight eye muscle.
4. External straight eye muscle.
5. Internal straight eye muscle.
6. Upper transverse eye muscle.
7. Lower transverse eye muscle.
8. The lachrymal glands.
9. The eye-lid in cross-section.
10. The eye-lid from its inside.
11. The artery of the orbit.
12. The lachrymal artery.
13. The artery of the optic nerve or retina artery.
14. The artery of the iris.
15. The artery of the upper eye-lid.
16. The frontal artery.
17. The arteries of the nasal cavity.




## D—Vertical section through the upper eye-lid (enlarged.)

1. The muscles of the eye-lid.
2. The adipose tissue, a layer between smooth muscular fibres.
3. The Meibomian glands.
4. The joining skin.
5. The glands of secretion.
6. The eye-lashes.
7. The sebaceous glands.




## E—Protective and lachrymal apparatus of the eye.

1. The upper eye-lid and its eye-lashes.
2. The lower eye-lid (upper lobule and eye-lid muscle taken off), the Meibomian glands and their orifices at the end of the eye-lashes.
3. The lachrymal glands and their 10 canals.
4. The crescent-shaped fold.
5. The lachrymal caruncula.
6, 7. The lachrymal canals (tubes) and the puncta lachrymala.
8. The lachrymal sac.
9. The nasal or lachrymal duct.

inducements to mental improvement; when oppressed by care and weighed down by misery, we should have little encouragement to continue longer in a world checkered by misfortune; or, did affluence favor us, we should be tempted to indulge in the thoughtless round of continued dissipation. But with the expectation of a future glorious state of existence, we can smile at care and trouble, arm ourselves against the fleeting pleasures of this life, and pity the deluded disciples of folly and dissipation. There is a deep spring of joy in hope to the human breast, whose waters, while life remains, never cease to flow. It is this that renders existence tolerable, and even precious to the bereaved and desolate wayfarer as he treads his downward path to the grave.

When all around is dark, and want and wretchedness stare us in the face; when in the past all is barren, and in the future there is no ray to light the wanderer in his pilgrimage, there is still a spirit of hope within him, teaching him to gather the few flowers that yet remain within his reach, though they be of fading beauty and dying fragrance. The faint glimmerings of the pale-faced moon, on the troubled billows of the ocean, are not so fleeting and inconstant as the fortunes and conditions of human life. We one day bask in the sunshine of prosperity, and the next, too often, roll in anguish on the thorny bed of adversity and affliction. How many are doomed to roam in this wide world alone, unpitied and unknown? What can cheer the mind, raise the drooping soul, calm the agitated bosom, and throw a cheering light on the future? It is hope! sweet hope! thou ministering spirit of Heaven, who visiteth the abodes of misery, wipeth the tear from sorrow's eye, chaseth away the anguish of despair, sweeteneth the cup of affliction with thine all-soothing and syren voice. And when the solemn hour of death shall come, and the lamp of life but faintly glimmer in the feeble frame, hope shall bid us look to a better and brighter world than this, to live and reign with the blessed Redeemer in never-ending joys; such joys as "ear hath not heard, nor eye seen; nor hath it entered into the human mind to conceive," that endless bliss which is prepared for those who love and serve God.

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## CHEERFULNESS.

CHEERFULNESS freshens the heart and makes it healthy and vigorous. The gloom and shadows that pass over the mind make us wretched and miserable, but the influence of sweet cheerfulness passes

over it like pleasant summer breezes, making creation glad. The heart would be cold and desolate, were it not warmed by the genial, sunny rays of cheerfulness. Spring with its smiles gladdens the earth, but when summer comes, nature bursts forth into a glow of cheerfulness that makes the very face of all things shine with beauty and fruitfulness. This sentiment imparts elasticity to the mind, and exerts over the disposition and intellect a powerful influence in preserving health. It throws a charm over all the acts of life, and is the companion of hope, spreading its genial rays over the heart, amid the trials and difficulties of the world. Its true votary does not yield to the troubles which he knows are incidental to existence. When the storm bursts over his head, he adapts his mind to his condition, and reflects that if it rage with violence, it will, probably, the sooner pass away. If he embarks in unlucky speculation, he treasures up his experience, and gains in wisdom what he loses in wealth. Success in love blesses him with joy. All his interests, all his hopes, all his pleasures, center in the object of his affection. He gathers around her the dearest wishes of his heart, and clings to her, with sweet devotion, through all the various adventures and misfortunes of life; though he be overwhelmed for a time with sorrow, yet it leaves him resigned and cheerful under the dispensation of Providence, and by divesting the world of half its charms, makes him the more ready to quit it without complaint.

The use of such a thing, although not widely acknowledged, is yet sensibly felt by all who are in the circle of its influence. He possesses the art to call up sparkling looks and merry smiles around him; of charming away, although for a moment, the bitterness of passion, or the darkness of grief; and of leaving an impression of happiness, however transient, on hearts which were before corroding with malice, or sinking into despair. The only necessary requisites for a cheerful disposition are such as every man of common intelligence can acquire.

To be strictly honest in all our dealings, and benevolent in all our intentions; to live between the extremes of labor and repose, and partake but moderately of the innocent pleasures within our reach; to love and practice truth and honor; to cherish kindness and affection for all our fellow-creatures, and to love God with our whole hearts—which indeed make up the happiness of man—are plain precepts of reason, simple to comprehend, and easy to adopt. All extremes are fatal to peace or health. The man who must be always soaring, or who requires perpetual rest; who runs to revel among the stars, or grovels in the dust; who pants for some wild or intense excitement, or desires to shun all the cares and anxieties which will

ruffle the calmest bosom, may, perhaps, occasionally realize great joy, or slumber in seeming content, but will not be happy. The first, however brilliant his triumph, or lofty the summit of his fame, will probably soon sink again to the cares of mortality; and when we consider the revolutions of time, and the propensity which human affairs possess, after any uncommon convulsion, to fall back into the general arrangement of things, as water forced up will naturally seek its own level, we may justly conclude that heroes, statesmen, and lucky adventurers, whose hopes are founded altogether on their transitory success, will enjoy less true cheerfulness than the poorest laborer, who knows himself, loves his God, and strives to perform all his duties as well as he can.

As for the hermit, and there are few exceptions, his dream of solitary bliss soon fades when put to the test. The heart, uninspired by hope, or unagitated by fear, languishes into misery almost insufferable, and all tortures of the rack, or the terrors and anguish of a violent death, are much more easily borne than the solitude of even a few years. I would rather possess a cheerful disposition, inclined always to look on the bright side, than, with a gloomy mind, be master of an estate worth ten thousand a year. Cheerfulness is a spring of power and of pleasure, alike to our physical, our mental, and our moral natures.

Cheerfulness, like most other talents and merits, is, to a large extent, the subject of voluntary culture; and the preservation and development of it should be looked upon as a duty which we owe alike to ourselves and to society. Those who, like the generality of men, have been in the custom of yielding up their tempers as vanes to be blown about by the shifting courses of fortune which way they will, would be surprised to know how much one's disposition and mood are under one's own control; how much the luster of the outward scene may be affected by the light within our bosoms. We may *set* our spirits to cheerfulness and keep them so, independently of the conditions of outward circumstances. And this is the true dignity, and happiness, and piety of man, to live above the shifting and dashing tides of the world's incidents and humors, to bring our nature into harmonious union with the great permanent type of human excellence.

Cheerfulness quenches blows, it blunts arrows, it rounds the edge of the sharp sword; it secures pure breathing in the foul air, easy digestion, and refreshing slumber. To others it is as the sun to the material world; flashing, life-giving light and warmth, and wafted upon by breezes which are the dispensing medium of hope and vigor. Gloom of spirit acts upon the intellectual faculties like a paralysis; the perception is dimmed, the invention is deadened, the judgment is

perplexed, the will is unnerved. Who, in such a moment, has not felt, when some unexpected occurrence of good fortune, or the voice of one long absent, or a burst of music, or a gleam of light blazing for a moment over the landscape, has struck, as with the prophet's rod, the rock of his wounded feelings, and made the waters of sympathy once more gush forth; who has not then felt the power of cheerfulness coursing like an electric fluid from one compass of his being to another, swelling his finite life to the dimensions of that blessed hope which points to that home beyond the grave? How sweetly does it retain its serenity amid the storms and trials of life, when overhung and shadowed by sorrow or peril! How does it cheer even the infirmities of old age, in the sweet remembrance and pleasant anticipations of meeting again those dear ones, whom we have loved on earth, where we shall be separated no more forever, soothing the declining hours of life, as the sun at evening lines the thickest clouds with her golden beams! And how does such a spirit as this give evidence of faith in Christ, and of delightful trust in the Divine Father, corresponding with all that is sublime in holiness and grand in self-devotion, and powerful and uplifting in belief of the truth! How sweet to feel the assurance that after life's day is done, we shall enjoy rest and peace in Heaven! How tranquil and how happy are those who have this sunny spirit, the charming influence of Christianity? that sweetener of life, that beautiful essence pervading our thoughts; that fruit of gentle submission to the divine wisdom; that shadow of God's home, the light emanating from His holy spirit! In Christ Jesus, our blessed Redeemer, through faith in Him and the reception of His spirit, and joyful trust in His redemption, we may all find this cheerful hope.

Along with cheerfulness we should cultivate humility. Humility has no connection with pensive melancholy or timorous dejection. While the truly humble guard against the distraction of violent passions and inordinate cares, they cherish a cheerful disposition of mind. There can not, indeed, be genuine cheerfulness without the approbation of our own heart. While, however, we pay a sacred regard to conscience, it must be enlightened and directed by reason and revelation. And happy are the individuals who can say our rejoicing is this testimony of our conscience, that in "simplicity and godly sincerity, we have had our conversation in the world." An approving mind will contribute greatly to cheerfulness, and that equanimity which results from it, from trust in God, and from the hope of a blessed immortality, is equally remote from sour dissatisfaction, desponding melancholy and frivolous hilarity. It smoothes our path and sweetens our cup, rendering duty easy and affliction light.

If we are cheerful and contented, all nature smiles with us, the air seems more balmy, the sky more clear, the ground has a brighter green, the trees have a richer foliage, the flowers a more fragrant smell, the birds sing more sweetly, and the sun, moon and stars all appear most beautiful. Cheerfulness bears the same friendly regard to the mind as to the body; it banishes all anxious care and discontent; it soothes and composes the passions and keeps them in a perpetual calm.

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## DESPAIR

When man had sinned, and the very elements seemed to sympathize in a lament for his lost innocence; in that hour of dismay, when seraphs forsook, and God himself turned away the light of his countenance, one bright spirit lingered, nor would desert man in this his extremity. With tender assiduity and many a winning token of kindness did she strive to wean man from his sorrow. She prevailed, and by degrees his mind seemed to lighten of the weight which oppressed it, and confidence resumed her seat—"The spirit joyed, 'Hope' enchanted smiled and waved her golden hair." Since then her home has been with the children of men; and ever with the same winning care has her syren song beguiled their hearts of sorrow, and buoyed up their sinking spirits.

But there are times when she comes not to the distressed. There are hearts pierced, which her gentle hands bind not up. There is a gloom which her light scatters not, and an anguish which her voice does not soothe. We are in loneliness, and no one is near; we grope in darkness, yet no friendly hand stretches out to save; we feel for something to which we may cling—all is empty; we shout in agony, yet no guiding voice replies—all is still. It is the feeling of despair, its loneliness, its utter solitude.

Give to man but the semblance of hope, and phantom though it may be, he will follow its guidance as eagerly as does the child pursue the gaudy insect. Give to him but a twig to cling by, and he will climb, aye, though frail the tenure, and the grave beneath. But quench the last spark of hope, and in despair he will fall without a struggle. Let the storm beat ever so fiercely upon the soul, yet, if but a single gleam finds its way to cheer and warm, it will revive; but let darkness gather around, and it sinks to the dust.

The feeling of which we speak is an indefinable sensation. We see its effects, and we know that it exists. We have all, at times, felt its

wretchedness, its misery. It is not disappointment; our hopes may have been baffled, but we trust still.

One stay might have been withdrawn, yet other means of support buoy up. It is not sorrow; for even it may be blended with some pleasurable emotion which will beguile its sting, or the hand of time may soften and mellow, and it will cease to grieve. But there is a blow, the weight, the pang of *despair*.—its touch weakens the strongest arm, and unnerves the stoutest heart.

The wealth which the labor of years has heaped together may be swept away in an instant; we know that gold is but dross, and that riches are unstable. Pleasures, which once delighted, may forsake us; we know that they are all vanity, that a touch may shatter. Fortune may turn her smile to a mockery, or *Fame* delude with unreal visions; we know that the former is a fickle goddess, and the latter a fanciful vagary, a sound that dies in the breathing.

Against all the losses and woes which throng thick upon us, we may bear up with firmness, but another blow follows—the friend in whom we had centered our affections, and to whom we had an unbosomed every sorrow, and with whom shared every joy; that being whom we had warned and cherished, turns his viper fang upon us, or when some loved form has entwined itself around us, until it has become linked with our being, death wrenches it away, and we feel that we had taken a flower to our bosom only to perish; it is the last drop, and the waters of bitter despair overflow. She comes to to the heart of the prisoner as he enters his solitary cell, and the last bolt is drawn; the sound of the receding footsteps dies upon his ear, and in sickness of soul he sinks down in utter hopelessness. She is with the wrecked mariner when the last lone plank which promised friendly support, had vanished, and his heart dies within him. Already the sound of waters is in his ear, and he "feels what pain it is to drown." Her wan and haggard form hovers around the couch of the dying when the last remedy has failed, and death's grasp is firm. It speaks in the dim eye, the pale and tremulous lip, and the faint and more faintly throbbing heart. Nor does its spell work upon the weak and timid alone; the mighty have bowed to it—at its touch, the check of courage pales, the arm of strength falls.

"Hope withering flies, and mercy sighs farewell." There are dark hours in the history of every human being, periods of despondency and gloom, when life seems without a solitary ray of brightness, and the future is shrouded in mist and melancholy. At such times the spirit is depressed, the soul within is involved in shadows, and it is in vain that we turn and turn and endeavor to avoid the onerous thoughts that crowd upon the brain. They force themselves upon us, and al-

our efforts to shake off this feeling of despair of the moment, are idle and fruitless. Phantom shapes flit before the imagination, dismally foreboding the loss of friends; unpleasant thoughts obtrude themselves upon us, and a mysterious feeling passes like a cloud over the spirit. These often come upon the soul in the busy bustle of life, in the social circle, in the calm and silent retreats of solitude, to remind us of imprudent conduct. At one time, perhaps, caused by the passing of a single thought across the mind; at another, a sound will come booming across the ocean of memory, gloomy and solemn as the death-knell, overshadowing all the bright hopes and sunny feelings of the heart. How many in this world have felt these stings! How many have cast their love abroad on hearts that did not appreciate their kindness! How many thousands have sought the silent inclosures of the dead, and gazed with anguish of soul upon the grave of some dear departed friend, whom they have treated unkindly! Oh! these are thoughts beyond control, which rack the human heart, and swiftly loose the pent-up fountains of an anguished soul, and cause bitter tears to fall fast.

Despair is the name by which we express the extremity of mental depression, against which the mind fails for a period to react. Through this dreadful feeling no ray of hope, no sunbeam of joy, breaks in upon the darkness of the soul. To one who has reached this state of utter despondency, life is no longer desirable; the charms of nature and of art call forth no throb of delight in the dark spirit, and the cheerful earth is a gloomy and barren wilderness.

I observed once a poor widow, as she slowly turned the corner of the street, stop and wipe away the tears that were fast chasing each other down her feeble cheek; and my heart took an interest in her care-worn face, for her affliction seemed great, though I knew not the cause. I followed her, unnoticed, to her humble habitation. I saw her enter, and heard her bestow a blessing upon three poor, shivering infants, who hailed her return with clamorous joy. She divided among them the scanty portion of food which her day's labor had been able to procure, and I saw her turn away and weep in silent despondency that it was so little. I resolved to inquire her history, for she appeared like one who had seen better days. She had entered life with fair prospects, had married early, and had lost her husband, whom she tenderly loved. He had been unfortunate in his business, and at his death was unable to leave her an adequate support for herself and three children. Misfortunes had continued to pursue her. She had talent, but ill-health and poverty prevented her from exercising it. She had industry, but could find very little to employ it. She called

at the house of the rich, but they "could not afford to employ her;" she was too delicate for hard labor, and her feelings were too refined to allow her being long importunate. She bore her sorrows, her privations, her hardships, and the mortification attendant on a condition like hers, in silence, until grief settled down into dark and deep despair. The friends of her prosperity had forgotten her in her misfortunes. She had nothing to attach her to life, except those desolate infants; for their sake she tried to support her miseries, and to struggle on yet a little longer.

The thoughts of leaving them exposed to a world which she had found so pitiless, shook her fortitude and destroyed her mind, and she is now an inmate of the lunatic asylum. How often does the remembrance of these poor children come to that broken heart, and she cries, "Heavenly Father, who tempers the wind to the shorn lamb, when shall I again see my dear husband and children?" This is no tale of fiction. There are thousands similar in this land of liberty, peace, and plenty. In this refined and enlightened age talent is often neglected, industry is too frequently discouraged, virtue unnoticed, and pride and riches seemingly triumph. How many delicate and sensitive hearts, who labor under "that poverty and sorrow, which patient merit of the unworthy takes," sink into despair! How often do circumstances of adversity throw around the spirit a withering influence; how often draw from us reproaches; not having a submissive will, how often does discontent plant itself in the breast, excluding every good that might flow from these missions of trial? Many as are the shadows that flit across the horizon of earthly happiness, where does not shine a star, where does not speak a still small voice to the mourner's heart, to light the gloom and minister comfort? There is a balm for every wound, a haven of rest where the sorrowing heart may find relief. Our lot may be cast amid the pure sunshine of an approving conscience, with not a cloud to intercept, and the pathway of our pilgrimage may constantly be illumined with the rays of righteousness and peace. Desolate, indeed, must be the heart that has no source of comfort, no rock to rest on amid the storms that beat around it, no firm foundation on which to build its hope of final triumph and deliverance. How can the vicissitudes of life be borne when there is no friend to share the toil and burden? When the tempest gathers and clouds roll over the soul, where may rest be found, in the moments of dejection, but in Him who knows every infirmity, who can "satisfy the longing soul," and say to the raging waves, "Be still?" There is no affliction but His love can soothe and alleviate, and no desire that His grace can not supply. He at last wipes away every tear, and

guides the poor afflicted one to that haven of rest where there shall be joy and bliss for evermore, "where the wicked cease from troubling, and the weary are at rest."

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## GRIEF.

The damps of Autumn sink into the leaves and prepare them for approaching decay; and thus insensibly are we, as years close around us, detached from our hold on life by the gentle pressure of recorded sorrows. The first thing to be conquered in grief, is the pleasure we feel in indulging it. There is but one pardonable sorrow, that for the departed. This pleasing grief is but a variety of comfort; the sighs we heave are but a mournful mode of loving them. We shed tears when we think of their departure, and we do so, too, when we think of reunion with them. The more intense the delight in the presence of the object, the more poignant must be the impression of the absence. These associations with the past do not excite sorrow, but to an affectionate mind are sorrow. The morality, then, which rebukes sorrow, rebukes love. There are, doubtless, cases not unfrequent, in which the mind is unduly overpowered by affliction, in which the tranquillity of the reasoning powers is utterly overthrown, and the energy of the will entirely prostrated. Here, beyond controversy, is a state of mind morally wrong, for God never absolves us from our duties, however He may, for a time, overshadow them by grief. But to rebuke the feelings of grief in such a case, is to cast the censure in the wrong place; it is not that the sorrow is excessive, but that other emotions are defective in their strength. The wise interpreter of his own nature will let his mourning affections alone. To interfere with them would be to wrestle with one's own strength; but he will draw forth, into prominent light, sentiments now sleeping idly in the shaded recesses of his mind. He will summon up the sense of responsibility, to rouse him with the spectacle of his relations to God his father, and his brother man; to recount to him the deeds of duty and the toils of thought, which are yet to be achieved ere life is done; to show him the circle of high faculties which the Creator has given him to ennoble and refine and keep ready for a world where thought and virtue are immortalized. He will call forth his affections for the living who surround him, and whom yet it is happiness to love and his obligation to bless, and these sympathies will be fruitful work for his hands, and interests, and refreshing to his heart; here are some of the invitations

to the exercise of benevolence, to bid the drooping soul look up. And the sufferer will evoke the spirit of Christian trust and hope; invoke the spirit of this trust, and though sorrow may not dry its tears, it rises to a dignity above despair.

Heaven and God are best discerned through tears; scarcely, perhaps, discerned at all without them. The constant recurrence of prayer in the hour of bereavement and the scenes of death, suffices to show this. Yet is this effect of internal distress only a particular instance of this general truth, that religion springs up in the mind wherever any of the infinite affections and desires press severely against the finite conditions of our existence.

Sorrow is the noblest of all discipline. Our nature shrinks from it, but it is not the less for the fostering of our nature. It is a scourge, but there is healing in its stripes. It is a chalice, and the draught is bitter, but strength proceeds from the bitterness. It is a crown of thorns, but it becomes a wreath of light on the brow which it has lacerated. It is a cross on which the spirit groans, but every Calvary has an Olivet. To every place of crucifixion, there is likewise a place of ascension. The sun that was shrouded is unvailed, and Heaven opens with hopes eternal to the soul which was nigh unto despair. Even in guilt, sorrow has sanctity within it. Place a bad man beside the death-bed, or the grave, where all that he loved is cold, we are moved, we are won by his affection, and we find the Divine spark yet alive which no vice could quench. We can not withhold our admiration, and we are compelled to give him our respect.

Christianity itself is a religion of sorrow. It was born in sorrow, it was incarnate in sorrow, in sorrow it was tried, and by sorrow it was made perfect. The author of Christianity was a man of sorrows and acquainted with grief. Alone did he tread the wine-press of agony, until the last drop of agony was crushed out. Alone did he walk on the waves of affliction, in the dark and stormy midnight of solitude and woe. With sensibilities so quick and gentle, and so loving; with a perfect soul, to which wrong and wickedness must have caused unspeakable pain, yet to which the depths of wrong and wickedness were exposed; with sympathies alive to the smallest suffering, and yet which clasped in their wide embrace all humanity in its wants and capacities; heavy, indeed, was the burden which his spirit had to bear. Not on one occasion only, but often, we conceive him bathed all over with the cold sweats of a terrible anguish; often we may hear him exclaim, "My soul is exceeding sorrowful, even unto death." But this sadness is exalting. A baptism of suffering is awarded to every man who strives for the higher life. Since Christ wept over Jerusalem, the best, the bravest who have followed

him in good will and good deeds, have commenced their mission alike in suffering. Sorrow is not to be complained of; it is the passport by which we are to be made acceptable in that house where all tears shall be wiped away. It has godliness in its power, it has joy within its gloom, and though Christianity is a religion of trials and afflictions, it is not less a religion of hope; it casts down in order to exalt, and if it tries the spirit by affliction, it is to prepare it for the great reward "that eye hath not seen, nor ear heard," nor has it entered into the mind to conceive. Though our affections are blighted, and our expectations in this world disappointed, we know that our Heavenly Father has the power to make all these melancholy scenes of life of salutary influence, and conducive to the soul's eternal health, and point, with unerring truth, the bright way up to the mansions of felicity in our Father's house.

> "Sure the last end
> Of the good man is peace! How calm his exit!
> Night dews fall not more gently to the ground,
> Nor weary, worn-out winds expire so soft."

It is utterly impossible that persons of a dejected mind should enjoy health; those who would live to a good old age must be good-humored and cheerful. Misfortunes are the attendant consequences of life, therefore it is our duty to our Heavenly Father to submit and bear them with fortitude and resignation to His will.

The mind is to be relieved by change of scene; innocent amusements, traveling, cheerful associates, and such subjects as engage the attention and dispel the gloom which misfortune has cast over it. Change of ideas is as necessary for health as change of posture. When the mind dwells long upon one subject, especially of a disagreeable nature, it injures the whole body. How many thousands of constitutions have been ruined by family misfortunes or other causes of grief? Do you ask the remedy? Religion. The blessed Redeemer has opened a fountain where every sorrow may be washed away—the waters of life, where all may freely drink and live. We have only to bear for a season our trials and afflictions; we are heirs of glory. Why then cling to earth, and turn our eyes away in gloom from that bright inheritance, which, in His tender mercy, is offered? "Come unto me all ye ends of the earth, and be ye saved," "without money and without price" Then grieve not, all will yet be well.

## JEALOUSY.

This fiend of human happiness, which destroys thousands of families and poisons the atmosphere of domestic bliss, dwells in the abodes of the rich and poor, the public functionary, and the private citizen. It has invaded all classes, from the humble peasant in his cottage to the pompous king on his throne. It has plucked the rose from the cheek of beauty, embittered the joys of the faithful wife, and to the confiding and affectionate husband destroyed his peace forever. Treason, murder, and suicide move in this demon spirit, this prime mover of dissensions, the soul of anarchy, the fuel of party spirit, the instigator of revolution, the bane of public good, the incubus of religion, the parent of wars, setting nations in commotion, and often sinking them into the dark abyss of irrecoverable ruin. Jealousy, of all the passions, is that which exacts the hardest service and pays the bitterest wages. Then let me implore you, as you value every earthly happiness and desire peace, banish from your mind this demon spirit, and cultivate it not, for it delights in human misery, and endangers the peace of every family.

While practicing medicine in Virginia, I was called at night to visit the wife of a man residing some ten miles in the country, in a wild and desolate tract. I perceived among the trees, the ruins of an old cottage, which I entered. To my great surprise it was inhabited, and unfortunately I arrived too late—she was dead. I found her lying upon a miserable bed, surrounded by her two weeping children. Her jealous husband had, in a fit of rage, killed her. She was one of those magnificent figures which continue beautiful even in the bosom of death. She had a large aquiline nose, whose contour, so expressive at once of elevation and tenderness, I never can forget. I quitted the mournful spot with feelings of deep sorrow for this wretched family, and felt an impulse of melancholy curiosity to learn the cause that induced this unfortunate man to commit this horrible deed. I was told that the jealous husband, R***, had found, concealed in his wife's trunk, the likeness of a young man who had, years previous to her marriage, been a suitor of hers in a little town in which they resided. On that very day he carried her off to this ruined and lonely cottage from her friends, and lived in the solitude of these woods for nearly three years. He uttered not a syllable; but, in answer to all her entreaties, he coldly and silently showed her the miniature, which he always kept about his person. He thus passed nearly three years with her. At length she died from the effect of a blow inflicted by this miserable wretch. Her mother, when she heard of the fate of her

child, died of a broken heart. The husband made an attempt to shoot the owner of the miniature, missed him, fled to New York, left on board a ship, and has never been heard of.

It is a bitter consciousness (none can tell how bitter but those to whom it has been given), when we are wakened from our long-cherished confidence in that being we have devotedly loved, and know that from henceforth it may never be indulged in again. All those beautiful visions we so fondly gazed upon in youth, fade from our view, and the demon, jealousy, takes possession of our minds and destroys that confidence and peace which can rarely, if ever, be recalled.

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## JOY.

This emotion is founded on delightful occurrences, and causes a universal expansion of vital action. The blood, under its animating influence, flows more liberally throughout the whole system, the countenance becomes expanded, its expression brightens, and the whole surface acquires the ruddy tint and genial warmth of health. The body also feels buoyant and lively. There is a consequent disposition to quick and cheerful muscular motions; to run, to jump, to dance, to laugh, to sing; in short, every function would seem to be gladdened by the happy moral condition. The common expressions, therefore, such as "the heart is light," or "leaps with joy," "to swell with pride," "to be puffed up with vanity," "to be big with hope," are not altogether figurative, for the heart does bound more lightly, and the body appears literally to dilate under the pleasurable affections of the mind.

Nothing contributes more effectually to the healthful and harmonious action of our organism, than an equal distribution of the blood to the various parts, and especially the free circulation of this fluid in the extreme vessels of the surface. A full, bright and ruddy skin is always ranked among the surest tokens of health. The nervous system must also experience a salutary excitement under the agreeable moral emotions. But I need not further dwell on what will be so apparent to all, the wholesome influence of a happy state of mind upon our bodily functions. Love, hope and joy promote perspiration, quicken the pulse, promote the circulation, increase the appetite, and facilitate the cure of diseases.

As, however, excess of feeling, whatever may be its character, is always prejudicial to health, and not unfrequently to life, even felicity itself, if it exceed the bounds of moderation, will oppress, and some

times even overwhelm us. When pleasurable feelings are extravagant, they become transformed into those which are painful, or, in other words, the extremity of pleasure is pain. Great joy is sometimes expressed, like grief, by sobbing and tears.

Extravagant and unexpected joy unduly excites the nervous system, increases unnaturally and unequally the circulation, and occasions a painful stricture of the heart and lungs, accompanied with sighing, sobbing and panting, as in severe grief. Under its influence, too, the visage will often turn pale, the limbs tremble and refuse their support to the body, and, in extreme cases, fainting, convulsions, hysterics, madness, temporary ecstasy or catalepsy and even instant death, may ensue. If the person be of a delicate and sensitive constitution, and more especially if he labors under any complaint of the heart, the consequences of the shock to the nervous system of sudden and immoderate joy will always be attended with exceeding hazard. I feel confident, from a long experience in my profession, that sudden joy is even more hazardous to life than sudden grief, and that there are more numerous instances of fatal effects from the former than the latter passion.

Diagoras, a distinguished athlete of Rhodes, and whose merit was celebrated in a beautiful ode by Pindar, inscribed in golden letters on a temple of Minerva, died suddenly from excess of joy on seeing hi three sons return crowned as conquerors from the Olympic games.

Dionysius, the second tyrant of that name, is recorded to have died of joy on learning the award of a poetical prize to his own tragedy. And Valerius Maximus has ascribed the death of Sophocles to a similar cause.

Chilo, a Spartan philosopher, called one of the seven wise men of Greece, on seeing his son obtain a victory at Olympia, fell, overjoyed, into his arms and immediately expired.

Pope Leo X, under the influence of extravagant joy at the triumph of his party against the French, and for the much coveted acquisition of Parma and Placentia, suddenly fell sick and died.

M. Juventius Thalma, on being told that a triumph had been decreed to him for having subdued Corsica, fell down dead before the altar at which he was offering up his thanksgiving. Vaterus relates that a brave soldier, who had never been sick, died suddenly in the arms of an only daughter, whom he had long wished to see.

A worthy family being reduced to poverty, the elder brother passed over to California, acquired considerable riches there, and returning home presented his sister with great wealth and rich jewelry. The young woman at this unexpected change of fortune became motionless and died.

The famous Fouquet died on being told that Louis XIV had restored him to liberty. The niece of the celebrated Leibnitz, not suspecting that a philosopher would hoard up treasure, died suddenly on opening a box under her uncle's bed, which contained sixty thousand ducats.

A clergyman, who, at a time when his income was very limited, received the unexpected tidings that property had been bequeathed to him, amounting to three thousand pounds a year, in great agitation at this statement, returned rapidly to his house, and, on entering the door, dropped down in a fit of apoplexy, from which he never recovered.

If the extreme of joy follow unexpectedly an emotion of an opposite character, the danger will be hightened. It is recorded of two Roman matrons, who, on seeing their sons whom they had believed to be dead, return from the famous battle fought between Hannibal and the Romans, near the lake of Thrasymenus, and in which the Roman army was cut to pieces, passed suddenly from the deepest grief to the most vehement joy, and instantly expired.

Examples have likewise happened where culprits, just at the point of execution, have immediately perished on the unexpected announcement of a pardon. We may hence draw the important practical lesson, that the cure of one strong passion is seldom to be attempted by the sudden excitement of another of an opposite character. Violent emotions are, as a general rule, to be extinguished gradually and cautiously. Rapid and extreme alternations of feeling, and indeed all sudden extremes, are repugnant to the laws, and consequently dangerous to the well-being of the animal economy.

This will show you the great importance, even in reference to bodily health, of an habitual cultivation of the pure, and generous, and amiable affections of our nature. When kept within due bounds, they become the sources of agreeable and salutary excitement, but when carried to extremes they may be attended with serious and even fatal consequences. I need scarcely remark here that to persons laboring under disease, or in a delicate situation, which delicacy forbids me to name, or impaired health from nervous affections, joyous intelligence ought always to be communicated with great caution. The human constitution should be restrained from acute excitements, whether of a pleasurable or painful character. A constant serenity, supported by hope, or cheerfulness arising from a good conscience, are among the most healthful emotions of the mind.

As old age comes on, the pleasurable susceptibilities become weakened, and the keenness of passion, in general, is blunted; not, however, that the aged, as some would seem to fancy, are left destitute of

enjoyment, for each period of our being has its characteristic pleasures. They have parted, it is true, with the eager sensibilities which mark the freshness of existence, but then they have gained a moral tranquillity with which earlier years are seldom blessed. The storms of youthful passion have subsided within their hearts, and if life has passed well with them, morally and physically, they now repose placidly amid the calm of its decline, looking for that joy which is promised to those who are faithful. Come and partake, ye blessed of my Father, and repose in the joys of His love forever.

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## FORGIVENESS.

Of the Divine attributes, that one which, in the eyes of humanity, seems to shed an especial luster around the person of Deity, is mercy It is the promise of mercy that has brought so many wandering sinners to his feet, and called forth a depth of love, unfathomable and surpassing all human attachments. This promise constitutes a distinguishing mark between our holy religion and other creeds. It invites the moral leper, all loathsome with the scales of sin, to come and rest upon the bosom of Jesus, and be cleansed by the celestial contact. It calls back the wandering and lost ones to their happy fold, and brings them once more to their compassionate Shepherd. In a word, this gracious attribute, and the promises based upon it, open the doors of Heaven to the vile, the blasphemous, the wicked of every grade and stamp, and beseech them to enter. There is none so deeply and grossly stained with pollution that he will not be accepted; nay, the worse the dye, the more glory doth it cast about the crown of God to wash it away with the waters of forgiveness. He thunders no anathemas, He casts no reproach upon the wicked; He chides them not in wrath, nor does He mete to them according to the measure of their deserts. But He says, "Mine only and well-beloved Son have I given for you; believe on Him and live." His forgiveness knows no limit—His mercy is inexhaustible. Though we sin seventy times seven, He is ready to pardon.

> "Man may dismiss compassion from his heart,
> But God will never."

But forgiveness is not to be practiced by God alone; it is enjoined upon man by Divine precept as well as by Divine example. The old law of Moses, it is true, said, "An eye for an eye and a tooth for

a tooth," but the new dispensation introduced a milder code, and a greater than Moses said, "Love your enemies, bless them that curse you, do good to them that hate you."

There is no virtue in the human heart which so adorns the life and character of an individual, nor duty more enjoined upon the Christian, than that of forgiveness. For proof of this, look at the example of Christ, who, while suffering on the cross by the hands of his enemies, exclaimed, in the anguish of his soul, "Father, forgive them, for they know not what they do." How noble the sentiment! How pure its author! And shall man, "created but a little lower than the angels," imitate the example of Him in whom there was "no guile," or shall he debase himself by failing to do so? So prone are we all to stray from the path of rectitude and duty, that we find ourselves often called upon to forgive the faults and errors of those who, in an unguarded moment, do us an injury; and unless we do this, hatred and revenge will reign triumphant in every heart, and sin hold unbounded sway. But, on the other hand, if we forgive those who trespass against us, we shall, by so doing, obey the injunction of Christ, and contribute to the enjoyment of those who offend us, and advance our happiness. We should see less of the spirit of retaliation, which now reigns in our midst, and, like a destroying pestilence, spreads desolation wherever it appears. If the poisonous darts of slander are hurled to crush our hopes and darken our prospects, we should remember that "to err is human," and freely forgive the offender. It will only increase the amount of guilt by cherishing ill-will toward our fellow-men, however great the offense may be. But, oh! 'tis blessed to forgive! to "do unto others as we would they should do unto us;" thus filling the hearts of the sons of men with joy, and not grief. Let us, then, if we would render ourselves ornaments to society, and beloved by the worthy and virtuous, cherish the Christian spirit of forgiveness, and then we can not fail to be happy.

Go, search the ponderous tomes of human learning—explore the works of Confucius—examine the precepts of Seneca, and the writings of Socrates—collect all the excellencies of the ancient and modern moralists, and point to a sentence equal to the simple prayer of our Saviour, "FATHER, FORGIVE THEM!" Reviled and insulted—suffering the grossest indignities—crowned with thorns, and led away to die, no annihilating curse breaks from His lips. Sweet and placid as the aspirings of a mother for her nursling, ascends the prayer of mercy for His enemies, "*Father, forgive them.*" Oh! it was worthy of its origin, proving incontestably that His mission was from heaven!

Acquaintances, have you ever quarreled? Friends, have you ever differed? If He, who was pure and perfect, forgave His bitterest

enemies, do you right to cherish anger? Brothers, to you the precept is imperative; you should forgive, not seven times, but "seventy times seven." Husbands and wives, you have no right to expect perfection n each other. To err is human. Illness will sometimes make you petulant, and disappointment ruffle the smoothest temper. Cultivate with care the kind and gentle affections. Plant not, but eradicate the thorn in your partner's path.

The man of revengeful spirit lives in a perpetual storm; he is his own tormentor, and his guilt, of course, becomes his punishment. Those passions which prompt him to wreak his vengeance upon his enemies, war against his own soul, and are inconsistent with his own peace. Whether he is at home or abroad, alone or in company, they still adhere to him and engross his thoughts; and Providence has ordained that whosoever meditates against the peace of another, shall, even in the design, lose his own. The thoughts of revenge break in upon his most serious and important business, embitter his most rational entertainments, and forbid him to relish any of those good things which God hath placed within his reach. Ever intent on the contrivance of mischief, or engaged in the execution, mortified with disappointments, or, his designs accomplished, tortured with reflection, he lives the life of a devil here on earth, and carries about a hell in his own breast. Whereas the meek man, who lives in constant good-will to all, who gives no man cause to be his enemy, and dares to forgive those who are so without a cause, hath a constant spring of pleasure within himself; let what will happen from without, he is sure of peace within. So far from being afraid to converse with himself, he seeks it, and meets with nothing in his own breast that does not encourage him to cherish that acquaintance. The passions which he finds there, instead of being tyrants, are servants. He knows the danger of obeying, and the impossibility of eradicating them; and while he forbids them to assume an undue influence, makes them the instruments of promoting his happiness. Happy in himself, he is free to all; he is a friend to mankind in general, and not an enemy even to those who hate him. Doth a momentary thought of revenge arise in his mind, he suppresses it, if on no other consideration, for his own sake; this he knows to be a duty as well as a pleasure. Blest with those feelings which shall not leave him at the grave, he imitates the Deity in benevolence, and obtains, as far as mortals can obtain, the happiness of the Deity in return.

Banish all malignant and revengeful thoughts. A spirit of revenge is the very spirit of the devil; than which nothing makes a man more like him, and nothing can be more opposite to the temper which Christianity was designed to promote. If your revenge be not satis-

fied, it will give you torment now; if it be, it will give you greater hereafter. No one is a greater self-tormentor than an injudicious and revengeful man. Let him whose soul is dark with malice and revenge, walk through the fields clad with verdure and adorned with flowers; to his eye there is no beauty—the flowers to him exhale no fragrance. Like his soul, nature is robed in the deepest sable. The smile of beauty and cheerfulness lights not up his bosom with joy; but the furies of hell rage there, and render him as miserable as he wishes the object of his hate. But let him lay his hand upon his breast, and say, "Revenge, I cast thee from me; Father, forgive me as I forgive others," and nature assumes a new and delightful garniture. Then, indeed, are the meads verdant and the flowers fragrant—then is the music of the grove delightful to the ear, and the smile of virtue lovely to the soul. Then will he enjoy the unspeakable happiness of obeying the precept, and imitating the example of our blessed Redeemer, who closed his mission on earth with that beautiful prayer, "Father, forgive them; for they know not what they do!"

How beautiful it is to see how God blesses the operation of his great moral law, "Love thy neighbor," and we should oftener see it, could we look into the hidden paths of life and find that it is not self-interest, riches, or fame that binds heart to heart. The bestowment of a friendly act can rob wealth of its strength, extract the bitter from the cup of sorrow, and open wells of gladness in desolate homes. We do not always see the golden links shining in the chain of human events; but they are there, and he is happy who feels their gentle but irresistible influence.

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## AVARICE.

The pleasure of avarice consists in accumulating and hoarding up treasures; in computing and gloating over them; in feeling the power which they bestow, and in the consciousness of possessing the means, though there be no disposition to employ them for the purposes of enjoyment; and finally, it may be presumed, in anticipating the future gratifications they are to purchase, since even in the most inveterate miser there is probably a sort of vague looking forward to the time when his superfluous stores will be brought into use to administer, in some way, to the indulgence of his wants, and the consequent promotion of his happiness, although such a period rarely, if ever, arrives.

The painful feelings mingled in avarice are gloomy apprehensions for the safety of its treasures, with uneasy forebodings of exaggerated

ills which would result from their privation. Hence fear, suspicion and anxiety serve to counterbalance the pleasure arising from the contemplation and consciousness of possessing the idol. And, then, there is the unhappiness accompanying every little expenditure, even for the common necessities of life—the pain, oftentimes distressing, of parting with even a fraction of that wealth to which the soul is so indissolubly bound.

There are passions whose consequences to the individual and to society are vastly more pernicious, but few are there more despicable, more debasing, more destructive of every sentiment which refines and elevates our nature than avarice. Nothing noble, nothing honorable can ever associate with the sordid slave of this unworthy feeling. It chills and degrades the spirit, freezes every generous affection, breaks every social relation, every tie of friendship and kindred, and renders the heart as callous to every sympathetic appeal as the inanimate mass it worships. Gold is its friend, its mistress, its god.

In respect to the physical system, avarice lessens the healthful vigor of the heart, and reduces the energy of all the important functions of the economy. Under its noxious influence the cheek turns pale, the skin becomes prematurely wrinkled and the whole frame appears to contract, to meet, as it were, the littleness of its penurious soul. Nothing, in short, is expanded either in mind or body in the covetous man, but he seems to be constantly receding from all about him, and shrinking within the compass of his own mean and narrow spirit. He denies himself not merely the pleasures but the ordinary comforts of life; turns away from the bounties which nature has spread around him, and even starves himself in the midst of plenty, that he may feast his imagination on his useless hoards. The extent to which this sordid passion has in some instances reached, would appear almost incredible.

Avarice does not, like most other passions, diminish with the advance of life, but, on the contrary, seems disposed to acquire more and more strength in proportion as that term draws near when wealth can be of no more account than the dust to which the withered body is about to return. Old age and covetousness have become proverbially associated. Not unfrequently will this sordid inclination remain active even to the end, outliving every other feeling that can cheer the languid eye or raise the palsied touch. Thus we have examples of misers who died in the dark to save the cost of a candle. Fielding tells us of a miser who comforted himself on his death-bed "by making a crafty and advantageous bargain concerning his funeral, with an undertaker who had married his only child." I well remember an old man, who—having reached the extremity of his existence, lying in a

state of torpor, and apathy to all around him—would always be aroused, and a gleam of interest light up his dim eye, by the jingling of money. Even the sudden and most appalling aspect of death will not always banish this base sentiment from the heart. In shipwrecks, persons have so overloaded themselves with gold as to sink at once under its heavy pressure. In excavating Pompeii, a skeleton was found with its bony fingers firmly clutched round a parcel of money.

"When," says Dr. Brown, speaking of the miser, "the relations, or other expectant heirs, gather around his couch, not to comfort, nor even to seem to comfort, but to await, in decent mimicry of solemn attendance, that moment which they rejoice to see approaching, the dying eye can still send a jealous glance to the *coffer*, near which it trembles to see, though dimly, so many human forms assembled, and that feeling of jealous agony which follows and outlasts the obscure vision of floating forms that are scarcely remembered, is at once the last misery and the last consciousness of life."

Although avarice can scarcely be set down as a very prolific source of disease, still, the painful feelings mingling with it, when extravagant, exercise a more or less morbid and depressing influence on the energies of life. The countenance of the miser is almost uniformly pale and contracted, his body spare, and his temper prone to be gloomy, irritable, and suspicious—conditions rarely accompanying a perfect and healthful action of the different bodily functions. He is, moreover, especially as age advances, apt to fall into that diseased and painful state of mind in which the imagination is continually haunted by the distressing apprehension of future penury and want. This is a strange monomania, inasmuch as its victims have means in abundance to secure them against the remotest prospects of such danger; and when, in the ordinary course of nature, wealth must soon become valueless.

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## CHARITY.

Nay, thank me not!" the kind one said,
"'T is to myself I've given!
Each friendly deed like this, I make
A stepping-stone to Heaven."

The Christian, the philanthropist, and those who may be favored with a bounteous store of the goods of this earth, should exercise charity toward their fellow-men suffering from the effects of want and poverty. If people knew the degree of good they could accom-

plish, by a little personal attention and relief to the poor, and by an occasional visit to their sick beds, we are sure no selfish or falsely sensitive feelings would deter them from the performance of such benevolent and truly Christian acts.

Christians should remember the poor; the thoughts of their wants and sufferings should lead them to the observance of benevolent duties enjoined upon them by the Saviour they profess to serve and worship, and by the religion they profess to practice. Let not the religion you have embraced become a by-word, nor your sincerity and honesty be questioned, through refusal or neglect to exercise those acts of kindness which make the heart of the sufferer leap for joy, and the desolate home brighten with the abundance of succor. Now is the time for the Christian to show by his words that he is not merely a professor, but an exemplar of the doctrines inculcated by the Saviour; for the philanthropist to extend his works of love to suffering humanity; for the rich to show their gratitude to the "Giver of all gifts," for their continued prosperity and bounteous earthly store, by extending the helping hand to their less fortunate and less prosperous neighbors.

Were you fortunate in inheriting a large property, or have you been prosperous in speculation, or in trade? in brief, do you possess houses, lands, stocks, and are you in receipt of an income, far more than adequate, not only to supply you with the necessaries and comforts, but with the luxuries of life? If the answer to all these questions be in the affirmative, Providence has clothed you with power to assist and relieve many of the poor and meritorious of your fellow-creatures. This may be done, too, without any injury to yourself, without curtailing your comforts, without impairing your health, without shortening your life. On the contrary, your mind will be soothed, your heart gladdened, and your whole nature improved by acts of benevolence; while those you have relieved will offer up prayers for your welfare, in this world, and in the world to come. You will feel a nameless, an indescribable satisfaction in the discharge of such duties as we have referred to. You will feel elevated in your estimation; your reflections will be calmer and sweeter, and even when wrapped in the arms of sleep your slumber will be deeper and more refreshing. The future, too, will catch a ray of light as from heaven; the Christian virtues will be felt and enjoyed by you, and kindling under the hallowed influences of that blessed spirit, Charity, you will, every hour of your life, rejoice when you awoke to a true sense of your duty as a sentient, conscious, responsible, and accountable being You might comfort and instruct thousands, whom, in the midst of

squalid misery, ignorance, and crime, you had sought to have reverence and love religion.

There are large numbers of sincere Christians in this world who, comparatively poor, yet manifest their principles by going about doing good. They are "the salt of the earth," and without the purifying influence of such, what would be the fate of the poor? Then be kind to the unfortunate, dry the mourner's tears, that memory may have a store of sweet thoughts to live upon when the reality shall no longer stand before us. The everlasting hills will crumble to dust, but a good act will never be forgotten. The earth will grow old and perish, but a charitable act will be ever green and flourish throughout eternity. The moon and stars will grow dim, and the sun roll from the heavens, but the spirit of the truly charitable man or woman will grow brighter and brighter, while God himself shall live.

The king of Persia, conversing with two philosophers and his vizier, asked, "What situation of man is most to be deplored?" One of the philosophers replied, that "it was old age, accompanied with poverty;" the other, that "it was to have the body oppressed with infirmities, the mind worn out, and the heart broken by a series of disappointments." The vizier, however, replied that he knew a condition far more to be pitied. "It is that," said he, "of him who has passed through life, without doing good, and who, unexpectedly surprised by death, is sent to appear before the bar of the Sovereign Judge of all."

Charity is placed at the head of all the Christian virtues by St. Paul. It is the foundation of all the Christian graces; without it, religion is like a body without a soul; our friendship a mere shadow; our alms the offerings of pride and hypocrisy.

Was this Heaven-born, soul-cheering principle, the main spring of human action, the all-pervading motive power that impelled mankind in their onward course to eternity, the polar star to guide them through this world of sin and woe, the trials and sorrows of life would be softened in its melting sunbeams, a new and blissful era would dawn auspiciously upon our race, and pure and undefiled religion would then be honored and glorified. Wars would cease; envy, jealousy, and revenge would hide their diminished heads; slander and persecution would be unknown; sectarian walls, in matters of religion, would crumble in the dust; the household of faith would become, what it should be, a united, harmonious family in Christ; infidelity, vice, and immorality would recede, and happiness, before unknown, would become the crowning glory of man; Christianity would stand forth, divested of the inventions of men, in all the majesty of its loveliness. The victories of the Cross would be rapidly achieved, and the bright

day be ushered in when our blessed Saviour shall rule as king of nations, as he now does king of saints.

Benevolence is a part of religion; it falls, like the dew from heaven on the drooping flowers, in the stillness of night. Its refreshing and reviving effects are felt, seen, and admired. It flows from a good heart, and looks beyond the skies for approval and reward. It is one of the attributes of Deity, the moving cause of every blessing we enjoy.

Religion begins with a change of heart. The greater part of life is usually occupied with the acquisition and use of property. A change of heart, if real, can not leave this principal part of life unaffected. Its subject must be expected to show that he has found a more valued treasure in Heaven by his new aims in getting, and his new principles in using the treasures of this world. If, in that chief part of life occupied with accumulating and using property, the professed subject of a change consisted in placing the affections on things above, continue to show the same estimate of property as the great end to be sought, the same eagerness in getting, the same tenacity in holding, the same self-seeking or exclusively selfish gratification in using it, need it be surprising that his worldly competitors doubt the reality of the change? Must not Christ repel such professors with his own searching question, "What do ye more than others?" There is nothing less than absurdity in the idea of a change, in which the man becomes a new creature in Christ, in which old things are passed away and all things are become new, which yet does not carry a new spirit through the business, and consecrate the property as well as the heart to God—in which the *theory* is all for the glory of God, the *practice* all for making money.

Religion is love. Now, love is an active principle. It is as natural for love to act beneficently, as for a fountain to flow, or a star to shine; and its action is ungrudging, unstinted, delighting in toil for the loved object. Witness, for instance, the toils of parental love. Can love to God and man be the very essence of the character, while beneficent efforts are left to hazard, crowded into the by-corners of life, supplied by chippings and remnants? *Can* love control the *heart*, when at the same time it obviously does not control the *actions* of the life?

Christians are laborers together with God. God is always giving, always employed in the work of beneficence; if we labor with him, then we must labor in the work of love and of beneficence. Can any one, then, be a laborer with God, and make that secondary which he regards as primary; pursue without plan, energy, or steadfastness, the object which he seeks with a steadfastness which knows no abatement, a zeal which spares no sacrifice, and an outpouring of treasure

which can not be calculated? Let the great fact possess your soul with the fullness which its reality demands, that you are privileged to be a laborer with God, and that God is unceasingly engaged in the work of beneficence, and you will cease to make selfish gratifications the exclusive object of your pursuit, and instead of beneficence being an occasional accident or appendage to business, it will become a steady aim, and be pursued mainly from love of usefulness—of being lik God, and engaged in the same work.

The benevolent man is the *truly* happy man. He that seeks to *get good* from men—to make them subservient to his happiness—is miserable, in comparison with him who aims to *do good* to others. God loves and blesses those whose disposition and conduct resemble his own. And as the mind becomes more generous, more pure, more active in doing good, all the sources of felicity will multiply around it; it will have peace and dignity within, and the smiles of infinite complacency will beam upon it with inexpressible glory.

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## ADVERSITY.

"Daughter of Heaven's relentless power;
Thou tamer of the human breast,
Whose iron scourge and torturing hour
The bad affright, afflict the best;
Bound in thy adamantine chain,
The proud are taught to taste of pain;
And purple tyrants vainly groan,
With pangs unfelt before, unpitied, and alone."

At a superficial view, it appears that adversity happens to all alike Without regard to rank or condition, the good are apparently as little favored by fortune as the bad, the high as the humble. People are continually rising and falling in all the grades of society. We often see men of high expectations, suddenly cast down from their lofty aspirations, and left to struggle with despair and ruin. A man's fortune depends upon such an uncertain basis; there are so many causes by which it may be lost, that we can not be sure of retaining, for any length of time, what we now possess. If the happiness of mankind depended upon the caprices of fortune, their condition would be bad indeed. But it is possible to possess a mind which will not lose its tranquillity in the severest adversity, or at least such a one as, being disturbed and deprived of its wonted serenity by a sudden calamity, will recover in a short period, and assume its native buoyancy, unimpaired by the shock which it has experienced. A mind that is pos-

sessed of warm sympathies and open to the pleasures of life, which at the same time is incapable of being injured by adversity; or, in other words, a mind that is capable of enjoying the blessings of wealth and favor, or of being happy without them, is undoubtedly possessed of the highest attainable virtue—a virtue which can only be attained by such as look "beyond this visible diurnal sphere," and fix their steadfast eye upon that Eternal Being who dispenses virtue and mercy, as the luminary of day dispenses light and heat throughout all the regions of his boundless universe.

Goldsmith has drawn a character in his *Vicar of Wakefield*, which is truly inimitable. Most people imagine that a man possessed of the virtues which have been celebrated so much in story, must appear, in all his actions, in his carriage and aspects, entirely superior to common men; they picture him to their imaginations as a being not made like themselves, but after a better fashion. There could never be a greater mistake. The greatest men often appear like the humblest. In the *Vicar of Wakefield*, Goldsmith has drawn a true character of a genuine Christian; he was deprived of almost every thing that was dear to him, but his mind, however distressed for a time, finally assumed its native serenity, and proved itself superior to every calamity.

I have seen many and varied scenes—some of joy, of sorrow, of care and quiet; but never have my feelings been so intensely affected as at the house of a friend, who had invited some poor little orphan children to dine with him. I sat next to a little girl. "I know," said she, addressing me, "why Mr. ——— has invited us to his house; it is because we haven't any friends. I have not seen a friend in five years!" Merciful heaven! Only twelve years old, and has not seen the face of a friend for five long years! We have heard many a sad tale of orphanage, and thought we felt sympathy for the friendless before, but we never heard words that went so directly to the heart; that made so palpable the dreariness of the long days and nights that heavily follow one another, unenlivened by a single smile, or kindly tone of one living being with whom the homeless can claim kindred We thought, too, that we knew of old something of the value of our friends, and estimated, not altogether too lightly, their joyous and assuaging influence upon the soul; but never before did our relatives seem so precious to our regard, or did our heart involuntarily seek to bind them to itself with such a tenacious embrace, as since the simple words of the poor orphan girl have given to us one slight and inadequate impression of her unutterable and melancholy experience. This fair and gentle child is dead, her hours of solitude are at an end, her pure spirit has met with friends with golden harps, who have taken

her by the hand and led her through the heavenly gates, and beside the still waters, to where a sweet, loving voice said, "Suffer little children to come unto me, and forbid them not, for of such is the Kingdom of Heaven."

No wonder that God, from His secret throne, has sent out so many kindly messages and sacred promises of love to the solitary and forsaken, the parentless and the widow; for, oh! how much do they need the sympathy of Heaven, who have no friends on earth? And how pleasant to the angels of consolation to pay their unobtrusive and peaceful visits to the children of loneliness and sorrow! Would it not repay us richly, aye, a thousand fold, if we would open our doors more frequently to those who have no homes, and distribute our kindly sympathies—which are, indeed, the bread of life—more freely to those who hunger and thirst for words of friendship and looks of affection and tenderness? Each heart requires sympathy, for it is like dew to the flowers, without it woe would be desperation, and our joy but feeble and fleeting. Every one who has felt the influence of a sympathizing friend, one whose eyes sparkle as we speak of our success, or whose face is sorrowful when ours is sad, will bear testimony to the truth of it. Are we rich? Our wealth is a sacred trust for us to deal out to humanity. Are we rich in grace? It is a heavenly treasure of kind thoughts and sentiments wherewith to bind up the broken-hearted! Are we rich in wisdom and knowledge? It is an inexhaustible supply of precious jewels confided to us to scatter along the road-side of life. Do we chance to be superior in any one moral quality? Then do our poor fellow-mortals possess much greater claim upon our good example, our constant patience and forbearance, our kindness, our interest, and our love. How can we possibly expect God to bless us, if we neglect the poor! No kind friend to speak a word of consolation to them; if they have trials and misfortunes, they must bear them in silence. How much genius, virtue, and modesty, shrink away in some obscure and lonely hovel, while vicious monsters and hypocrites hide themselves so easily in silken robes! To do good we must mingle with society, in order to give and receive instruction; to aid and comfort one another; to seek out the poor, the widow, and the orphan, and to promote and advance not only their earthly but their spiritual comfort, and by love and sympathy soothe their wounded spirits, instead of hiding our light under a bushel.

"Go abroad in some great city, in the night; before you brightly shine the lights in that stately mansion, where pleasure has gathered her votaries. The dance, the song are there; and gay voices, and exultant hearts, and fair features, that grow fairer in the excitement, 'and all goes merry as the marriage bell.'" And most natural and

fitting is it that the hearts of the young should glow with fervid pleasure in the whirling and dazzling scene. But here is only a part of the scene; at this very moment, within sight of the brilliant windows, within the sound of the rejoicing music, a widowed mother sits in her dreary room, and to her frame consumption has brought its feebleness, and to her cheek its flush, and to her eye its unnatural light. Her children sleep around, and one, that ever stirs with the low moanings of disease, slumbers fitfully in the cradle at her feet. Her debilitated frame craves rest; yet by the light of a solitary lamp, she stil' plies her needle that her children may have bread on the morrow. While she labors through the lonely hours, her sinking frame admonishes her that this resource soon must fail, and she be called away to leave them alone. And while her heart swells with anguish, the sound of rejoicing comes on the wind to her silent chamber. Not one of all that gay circle whose eyes will not close before hers this night! One by one the wheels that bear them to their homes depart; the sounds of mirth and pleasure grow silent in the midnight hours; the lights of the brilliant mansion are extinguished; but still from her chamber shines her solitary lamp. The dying mother must toil and watch! With the morning, and brighter than its footsteps upon the mountains, behold one of that gay throng, in the bloom of youth, leaving her home—she has entered the narrow lane and opened the door of that obscure chamber. She has gone to sit with this poor widow; to carry her needed aid; to watch over her sick child, and to whisper to her the sweet words of human sympathy. Blessed is she who can thus forget herself, and find enjoyment in carrying the happiness to those who sit unfriended and alone. The heart of the lonely mother is warmed by her coming—for blessed to the desolate is the fresh sympathy of the young and happy. She is no longer alone; they have a common hope; they can bend together before the same Father; they read the same Gospel; they visit the cross together, and together watch at the tomb on the morning of the resurrection. When she is again left in her lonely chamber, she is not alone. As her visitor retires, grateful thoughts of human sympathies linger behind, like sunset in the air. The sense of God's kind providence rests on her soul. To her faith the distant are brought near, and the dead live—await her coming to a better land. Her mind goes forward to the future; she rises above the clouds. Serenely shines the sun, gently falls the love of God upon her heart. Sitting amid trials and darkness, and the ruin of earthly prospects, with calm spirit she builds her hope in Heaven. The prosperity, the adverse fortunes, the joy, the grief, all this might be seen in every age. It is Christianity that has brought sympathy to the suffering, hope to the bereaved, and

resignation to the afflicted; which has brought light to dark hours, and faith in Heaven to those that dwell amid the sorrows of earth. It is Christianity that softens and melts the ice of prosperity; which has smitten the rock, and made it a fountain of living waters to those who dwell in the valleys below.

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## KINDNESS.

KINDNESS will go farther, and yield more happiness in this world, than all the haughtiness and asperity we can possibly assume. How much easier, too, is it to act kindly and naturally to our fellow-men, and even to the domestic, useful, and faithful animals about us, than to affect a rude and boisterous demeanor, which is sure not only to make others despise us, but, on reflection, to cause us to despise ourselves! A kind, sympathizing word from the lips, falls like oil upon the ruffled waters of the human breast. And this is the great secret in the success of business—why some are successful, and others unfortunate. An indelible motto should be impressed on the mind of every sensible man, who would wish to pass through life successfully—that honey catches flies, but vinegar never. Nothing is more valuable, that is so easily purchased, than good nature. A man with a pleasant disposition finds friends every-where, and makes friends where people of a contrary nature see only enemies. Good nature is one of the sweetest gifts of Providence; like the pure sunshine, it gladdens enlivens, and cheers in the midst of anger and revenge. It is good nature that elevates, purifies, and exalts; but the reverse that degrades, debases, and destroys. Who will not strive to possess this glorious trait of character? The heart is easily overcome by acts of kindness. A kind word may fall like drops of rain upon the drooping flowers. Every kind act you bestow will have its influence, and eternity will reveal it. The kind charity bestowed upon the poor beggar; the tear you have wiped away; the glass of cold water you have lifted to the parched lips, have had their effect. You will remember them in the hours of affliction and death. However small, they have helped to swel the broad river of mercy and goodness, that will eventually so fertilize the moral world that it will become the garden of the Lord.

Have we a son or a daughter whose juvenile indiscretion, or thoughtlessness, has awakened our care? Be cautious; harshness and tyranny will almost invariably add fuel to the flame of perverseness, while a gentle word of affectionate reproof, like the pliant rod of Moses with

the flinty rock in the desert, will soon bring the waters of repentance Even to those around us, however menial be their capacity, it is not only our duty, but our interest, to show forbearance and kindness of demeanor; for which of us, if placed in their situation, would look more closely to the interest of our employer, if constantly reminded of our degradation, by his or her arrogance, or rewarded for every generous and faithful duty with a cold word, or a thankless look? I am convinced that there never yet was an instance, in which kindness has been fairly exercised, but that it has subdued the enmity opposed to it. The first effort may not succeed, but let it repeatedly shed the dew of its holy influence upon the revengeful soul, and it will soon become beautiful with every flower of tenderness. Let any person put the question to himself, whether, under any circumstances, he can deliberately resist continued kindness, and the voice of affection will answer, "That good is omnipotent in overcoming evil."

If the angry and revengeful person would only govern his passions, and light the lamp of affection in his heart, that it might stream out in his features and actions, he would soon discover a wide difference in his communion with the world. A kind word, an obliging action, even if it be a trifling one, has a power superior to the harp of David in calming the billows of the soul.

Every great and noble feeling which we exercise, every good action which we perform, is a round in the ladder which leads to God. How delightful it is to scatter the blessings of benevolence over the habitation of distress; to raise the drooping head of pining worth; to minister to the poor widow and friendless orphan; to promote the industry of the poor; to bestow rewards on the children of labor, and to search into the cause of sorrow and distress! Men think very little of the value of a bow, or a smile, or friendly salutation, yet how small the cost, how often great the return! By a few soft words, and pleasant looks, enemies have been made friends, and old attachments renewed that had been annulled for years. A smile—it beams upon the lover's heart like a ray of sunshine in the depths of the forest. A nod, a kind look—it has gained more friends than wealth and learning put together. A grasp of the hand—it is more potent in cementing the ties of affection than all feelings of self-interest. Be kind, for memory is an angel that comes in the holy night-time, and, folding its wings beside us, silently whispers in our ears our faults or our virtues, and either disturbs or soothes our spirit's repose. He who will turn away a friend for one fault, is a stranger to the best feelings of the human heart. Who has not erred at least once in his life? If that fault were not overlooked, to what depths of infamy would not thousands have descended? We know not the peculiar and pressing temptations to

which another may be exposed. He may have fought manfully for months against the sin, and still kept the secret locked in his bosom. At last he was overcome; he would give worlds to recall the act; he has mourned over it in secret, and repented in dust and ashes. Shall we forsake him? Earth and heaven, justice, humanity, philanthropy, and religion, cry out, "Forgive him!" He who will not forgive, must possess the heart of a demon—surely the love of God is not in him.

"Some years ago," says the Rev. William Jay, "I had in my garden a tree that never bore. One day I was going down with the ax in my hand to fell it; my wife met me in the pathway and pleaded for it, saying, 'Why, the spring is now very near; stay, and see whether there may not be some change; and if not, you can deal with it accordingly.' As I had never repented following her advice, I yielded to it now; and what was the consequence? In a few weeks the tree was covered with blossoms, and in a few weeks more it was bending with fruit. Ah! said I, this should teach me; I have learned a lesson not to cut down too soon; that is, not to consider my object incorrigible, or abandon it too hastily, so as to give up hope, and the use of means and prayer in their behalf."

The Bible says: "Then said he unto the dresser of the vineyard: Behold, these three years I come seeking fruit on this fig-tree, and find none; cut it down, why cumbereth it the ground? And he answering said unto him: 'Lord, let it alone this year also, and if it bear fruit, well; and if not, then after that thou shalt cut it down.'"

Let not the hope of worldly recompense prompt thee to good actions. Be content with the approval of heaven and of thine own soul. The human heart rises against oppression, and is soothed by gentleness, as the waves of the ocean rise in proportion to the violence of the winds, and sink with the breeze into mildness and serenity.

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## CONCLUSION OF THE PASSIONS.

I HAVE now done with the Passions, and have shown you that pure and well-regulated moral affections are essential to the whole animal economy; that the turbulent and evil passions must necessarily corrupt the health, the sources of our physical, moral, and intellectual health, and thus be followed by heavy penalties, and suffering to the general constitution. Even our physical interests, separate from any other motive, demand the cultivation of the good and the restraint of the evil passions of our nature.

If you desire to preserve your health, you must previously learn to

conquer your passions and keep them in absolute subjection to reason for let a man be ever so temperate in his diet and regular in his exercise, yet still some unhappy passion, if indulged in to excess, will prevail over all his regularity, and prevent the good effects of his temperance. It is necessary, therefore, that he should be at all times upon his guard against an influence so destructive.

There is a close connection between a virtuous regulation of the moral feelings, and the health of the body. Virtue is the best preservative of health, as it prescribes temperance, and such a regulation of our passions as is most conducive to the well-being of the animal economy; so that it is, at the same time, the only true happiness of the mind, and the best means of preserving the health of the body. Without a prudent government of the affections, you can not enjoy health. Then let me urge upon you that the mind should be early trained up in virtuous habits, particularly in modesty and obedience, as the most summary method of insuring the health of the body in future life.

Then how essential and important to commence early the moral education of children! Every day that this is neglected will the baneful feelings of their nature be acquiring additional force and obstinacy. It is in the very germ, in the weakness of their birth, that these are to be successfully combatted. As I have before told you, children derive from their parents peculiar traits of character, and therefore require moral discipline, at an age by far earlier than is usually imagined. That many children suffer in their health, and many times to no slight extent, under the repeated and severe operation of passion, which parents have neglected to reprove, is a truth too plain for contradiction. And not only have they to undergo present suffering from such unpardonable remissness, but not unfrequently does it become the cause of an afflictive train of infirmities both of mind and body in their future years; and experience, it may be of the most painful character, must teach them to bring under control feelings which should have been repressed in the commencement of their growth. We frequently see parents, by humoring children when little, corrupt the fountains of their nature, who wonder afterward when called to taste the bitter waters which they themselves have poisoned at their source.

No duties or obligations have been more often eloquently enforced by the moralist and divine, than those of the child to the parent; and I would not say aught that might serve, in any degree, to weaken their deep and binding character. Still, it appears to me, that those due from the parent to the child, are really paramount, and most serious consequences will be hazarded by their oversight. Parents bestow

existence upon their children, and are, therefore, by every law of nature, human and divine, bound in the most solemn manner to spare no sacrifice, and omit no effort, which may contribute to render that existence a blessing. If, through their culpable neglect and mismanagement, they entail upon them a host of mental and bodily ills, how can they expect any consolation and happiness, or gratitude, for a life which they have burdened with afflictions, and been instrumental by their neglect in desolating!

When we consider the carelessness and misjudgment so often exhibited in the early training of the young, how many children are literally educated by example—if not by precept—to falsehood, hypocrisy, pusillanimity, and intemperance, in its broadest sense—in short, how many moral and physical vices are allowed to ingraft themselves upon the constitution, even in the dawn of its development—we are led almost to wonder that human nature does not grow up even more corrupt than we actually find it.

In my concluding remarks on so important a subject, I would again urge the high importance, to the whole living economy, at all periods of our existence, of a prudent government of the moral constitution. Man, unrestrained by discipline, or abandoned to the turbulence of unbridled passion, is pitiable and degraded indeed. The fountains of his health and enjoyment are corrupted, and all that is comely and elevated in his nature marred and debased. His whole life becomes but a succession of painful mental and physical strugglings and commotions; making him equally a torment to himself and all around him.

But the passions—given to us for wise and beneficent purposes—are often prolific of evil, and frequently a fruitful source of disease and sorrow, yet Providence, in great wisdom, has given us power to control them. By education and due culture of all the benevolent feelings of our nature, they may be overcome and rendered our richest blessings, soothing the pains and disappointments of life; while the gladdening beams of hope may penetrate even the darkest night of the soul, and point out to us the joys of another and a brighter world.

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## INTEMPERANCE.

INTEMPERANCE not only destroys the health, but inflicts ruin upon the innocent and helpless, for it invades the family and social circle, and spreads woe and sorrow all around; it cuts down youth in all its vigor, manhood in its strength, and age in its weakness; it breaks

the father's heart, bereaves the doting mother, extinguishes natural affection, erases conjugal love, blots out filial attachment, blights parental hope, and brings down mourning age in sorrow to the grave. It produces weakness, not strength—sickness, not health—death, not life. It makes wives widows, children orphans, fathers friendless, and all at last beggars. It produces fevers, feeds rheumatism, nurses the gout, welcomes epidemics, invites disease, imparts pestilence, embraces consumption, cherishes dyspepsia, and encourages apoplexy and paralytic affections. It covers the land with idleness and poverty, disease and crime; it fills our jails, supplies our alms-houses, and furnishes subjects for our asylums; it engenders controversies, fosters quarrels, and cherishes riots; it condemns law and spurns order; it crowds the penitentiaries, and furnishes the victims for the scaffold; it is the life-blood of the gambler, the food of the counterfeiter, the prop of the highwayman, and the support of the midnight incendiary and assassin, the friend and companion of the brothel. It countenances the liar, respects the thief, and esteems the blasphemer; it violates obligations, reverences fraud, and honors infamy; it defames benevolence, hates love, scorns virtue, and slanders innocence; it incites the father to butcher his innocent children, helps the husband to kill his wife, and aids the child to grind the parricidal ax. It burns man, consumes woman, detests life, curses God, and despises heaven; it suborns witnesses, nurses perjury, defiles the jury-box, and stains the judicial ermine; it bribes votes, corrupts elections, poisons our institutions, and endangers our government; it degrades the citizen, lowers the legislator, and dishonors the statesman. It brings shame, not honor—terror, not safety—despair, not hope—misery, not happiness; and then, with the malevolence of a fiend, it calmly surveys its frightful desolation, and, insatiate with havoc, it poisons felicity, kills peace, ruins morals, blights confidence, slays reputation, and wipes out national honor; then curses the world, and laughs at the ruin it has inflicted upon the human race.

I knew a youth—a noble, generous youth—from whose heart flowed a living fount of pure and holy feeling, which spread around and fertilized the soil of friendship, while warm and generous hearts crowded about and inclosed him in a circle of pure and god-like happiness. The eye of woman brightened at his approach, and wealth and honor smiled to woo him to their circle. His days sped onward, and as a summer's brook sparkles all joyous on its gladsome way, so sped he on, blithesome amid the light of woman's love, and manhood's eulogy. He wooed and won a maid of peerless charms; a being, fair, delicate and pure, bestowed the harvest of her heart's young love upon him. The car of time rolled on, and clouds arose.

to dim the horizon of his worldly happiness. The serpent of inebriation crept into the Eden of his heart; the pure and holy feelings which the God of nature had implanted in his soul became polluted by the influence of the miscalled social cup. The warm and generous aspirations of his soul became frozen and callous within him. The tears of the wretched, the agony of the afflicted wife, found no response within his bosom. The pure and holy fount of universal love within his heart, that once gushed forth at the moanings of misery, and prompted the hand to administer to the requirements of the wretched, sent forth no more its pure and benevolent offerings; its waters had become intermingled with the poisoned ingredients of spirits, and the rank weeds of intemperance had sprung up and choked the fount from whence the stream flowed. The dark spirit of poverty had flapped its wings over his habitation, and the burning hand of disease had seared the brightness of his eye, and palsied the elasticity of his frame. The friends who basked in the sunshine of his prosperity, fled when the wintry winds of adversity blew harshly around his dwelling.

Pause, gentle reader! Go to yon lowly burial place, and ask who rests beneath its lowly surface! "The moldering remains of a drunkard!" One who possessed a heart overflowing with the milk of human kindness, the days of whose boyhood were hallowed by high and noble aspirations; the hours of whose early manhood were unclouded by care and unstained by crime; the setting orb of whose destiny was enshrouded in a mist of misery and degradation. He saw the smile of joy sparkling in the social glass; he noted not the demon of destruction lurking at the bottom of the goblet; with eager hand he raised the poisoned glass to his lips and he was ruined

It is liquor that mars the whole consistency and blights the noblest energies of the soul; it wrecks and withers forever the happiness of the domestic fireside; it clogs and dampens all the generous and affectionate avenues of the heart; it makes man a drone in the busy hive of society, an incumbrance to himself, and a source of unhappiness to all around him; it deprives him of his natural energies, and makes him disregardful of the wants of the innocent beings who are nearest to him and dependent upon him; it transforms gifted man (fashioned in the express image of his Maker) into a brute, and causes him to forfeit the affections and break the heart of the innocent and confiding being whom God has made inseparable from himself, and who should look up to him for comfort, protection, and support; it causes him contemptuously to disregard the kind admonitions of a merciful Saviour. Liquor! Oh! how many earthly Edens hast thou made desolate! How many starved and naked orphans hast thou cast upon the cold

charities of an unfriendly world! How many graves hast thou filled with confiding and broken-hearted wives? What sad wrecks hast thou made of brilliant talents and splendid geniuses? Would to God there was one universal temperance society, and all mankind were members of it; the glorious cause of Christ would be advanced, and myriads of barefooted orphans and broken-hearted wives would chant praises to Heaven for the success of the temperance cause; the lost would be reclaimed and bleeding hearts healed! Oh! thou mighty transformer of intellectual and generous-hearted man into all that is despicable! The effect, which the habit of drunkenness produces on offspring, is one which, on account of false delicacy and ignorance, has seldom been presented before society with that clearness, and in fact truth, which the nature of the case demands. Science and general intelligence, at the present time, have greatly changed the public taste; and these topics, which, twenty years ago, could only be found investigated in medical works, and occasionally hinted at in public prints, are now wisely and decorously listened to with profound interest and attention, by large, refined, and respectable audiences.

In presenting the subject, we are led by motives of benevolence, not only to individuals and families, but to humanity itself. To benefit mankind, we must commence at the foundation, the root and origin of the evil, and to obviate any particular evil the best way is to inform the reason and address the judgment, and thus force conviction on the understanding and the heart. The deleterious effects of drunkenness are demonstrated by facts.

In regard to posterity, a knowledge of constitutional deformity in the child, in consequence of the intoxication and intemperate habits of the parent, should convince us that the use of spirituous liquors must be highly injurious to the race, in producing effects destructive to health, intelligence, and long life. They accelerate and pollute all the fluids in the system, and by that reaction which is sure to follow, leaves even the muscles and bones themselves affected with disease. In a few years we see the whole man changed. His erect and manly form has assumed a swinish and beastly bearing, and so great is the change that the most familiar friend who has been absent, on being brought suddenly into his presence, would scarcely recognize him. Now, should we not reasonably suppose that that which affects the whole man or woman must proportionately affect embryonic existence; that the drunken fathers or mothers must become the authors of a misformed progeny; that there must be a radical derangement in the functions of the brain and nerves themselves? Most assuredly; and to this cause alone is to be attributed, in some considerable degree, the more irritable nerves and shorter life of the present race. Now,

let us turn to facts which came under our own observation. We recollect a child, a boy of ten years, who always had the drawling aspect of a man two-thirds drunk—the saliva, when he was awake, except when eating or drinking, running from the corners of his mouth. The mother said she was frightened at the appearance of a drunken brother, as the spittle was thus drawling from him. We saw another who was alway reeling, staggering, and pitching when he walked, the same as a drunken man, with the same idiotic expression. The mother said it was in consequence of cohabiting with a drunken husband.

Now, with these facts before us, what a hazard does that female run who allies herself to an intemperate man and risks having children, if not objects of disgust and deformity, yet on account of seminal pollution, an irritable, brainless race, possessed of low propensities, and, therefore, objects of pitiable compassion and forbearance! Is the authority of such men as Gall, Caldwell, and Burton to be despised? Are the teachings of common sense not to be regarded? Are these matters of fact, observation, and experience, to be scouted? We pity the beautiful and fascinating girl, the noble and refined lady, who has to bear with the hot breath and foul mouth of a beastly husband; but we compassionate her still more when called to rear a set of simple, irritable, and ungovernable children, as the legitimate fruit of a drunkard's love. For the sake of the race, the drinker of ardent spirits should be separated from the domestic bed and board, and the wife, on establishing the fact of habitual intemperance, be entitled to a divorce. Maternal drunkenness should condemn to perpetual celibacy, to utter seclusion from all connubial endearments. A drunken mother, a drunken father, a drunken husband, a drunken wife! fountains of seminal pollution, and a country's curse! Flee the inebriate, ye fair, as ye would a deadly malaria, polluting equally the body and soul. Independent of a pernicious example, there is "death" poisoning the very fountains of human nature itself. The sins of the parent are thus visited on the child unto the third and fourth generation. No system of education, nor grace itself, can eradicate this evil. The nervous, imbecile child will be nervous and idiotic still. Mr. Combe, in his *Constitution of Man*, has an illustration of the laws of organic life, in the case of a young couple, who, drunk with wine, spent the evening of their first and last interview in a licentious manner, and the fruits of their illicit intercourse was a drunken, idiotic child. Let no man keep company with his wife for the sake of posterity, except when he is sober, for children usually prove wine-bibbers and drunk-

ards whose parents begat them when drunk. Dr. Gall believed drunkenness an hereditary cerebral disease, and notices a Russian family who, throughout three generations, were individually the victims of the vice. Burton, the greatest of all observers, in his *Anatomy of Melancholy*, says: "If a drunken man begets a child, it will never have a good brain."

Several years ago, a highly respectable young lady, well educated and tenderly brought up, became attached to and married a young gentleman, at that time in commercial business, and having fine prospects. They lived for a time happily and prosperously. An opportunity soon offered, and Mr. B. was induced to visit the western country, and become the proprietor of a hotel. While in this business, he, unfortunately, became intemperate in his habits, and so neglected his business, that he was finally obliged to remove to another section of the country. He again established himself at another hotel, where, after a brief career, the fiend intemperance still dogging his footsteps, he was again compelled to sell out and remove. His next location was still farther west, where a few friends once more re-established him, his wife clinging to him through all his vicissitudes, with the tenacity of a woman, and the faint but constantly beaming hope that he would yet reform and resuscitate his almost lifeless fortune. For the third time, however, strong drink obtained the mastery. He was sold out, and again compelled to try the southwest. He passed down the Ohio and Mississippi rivers to New Orleans, his wife still clinging to him, and finally proceeded into Texas. Here he rallied for a little while, but the period was brief, for intemperance and the climate, acting together, soon put an end to his earthly career. His poor wife, at the time, had two children with her—one a boy of three and a half years of age, the other an infant of only eleven months, and not a dollar to provide them food. Her situation was terrible indeed, especially when we remember her early education, kindly bringing up, and the doting fondness with which she clung, in every misfortune, to her ever kind, but misguided and ruined husband. Appreciating her situation, a few charitable individuals engaged a passage for the widow and the little family on board a schooner bound to Philadelphia. They had been out but a few hours, before the unfortunate woman, overcome by distress, anxiety of mind, and the condition of her children, was seized with a violent fever, and died a raving maniac. Her little infant was taken from her dead arms and kept on sweetened water during the voyage. The passengers extended every aid possible; but there was no female on board, and men are not exactly suited to nurse an infant of so tender an age, and at sea. The fate of the poor mother must indeed be

lamented by every feeling heart. Her body was thrown into the sea, and the little orphans were soon in the care of a family, who, acquainted with the deceased, were glad to see that their wants were abundantly supplied. The infant, on its arrival in Philadelphia, was completely emaciated, and had scarcely enough of life remaining to animate its feeble frame.

Temperance is a Masonic virtue. And let it be held in everlasting remembrance, that *intemperance* is a most fatal and destructive vice The temptations and delusions of this adversary of our peace, the treacherous arts by which it flatters us from the paths of rectitude, and the syren song by which it lures us into its foul embrace, surpass all powers of description. The cursed, fascinating, fatal charm by which it binds the faculties, captivates the heart, and perverts and paralyzes the understanding, is a matter of the profoundest astonishment. Before the danger is discovered, escape is almost hopeless, and the willing victim frequently lost. Floating gently down a smooth and delightful current toward the brink of tremendous cataracts, he sees no necessity of resisting its force, perceives not its increase, nor reflects that he is approaching the danger. Every moment the power and inclination to resist diminish, while the danger is increased. He approaches, perceives the dashing, hears the roaring, and feels the trembling. The current is accelerated, and becomes irresistible; he is hurried to the brink, where the abyss yawns, and is swallowed in the vortex and lost forever. Is the charm irresistible? Does the malady admit no cure? Is the calamity inevitable? Can nothing be done by *Masons* to prevent it? Yes. Let them beware that they never countenance or indulge an intemperate brother. Let them administer correction with the hand of friendship. Let the admonition be honest, faithful, and seasonable. They will pardon my zeal, for it is in the cause of humanity. I plead in the name and in behalf of suffering virtue, neglected and abandoned to revel and riot. See the father's pride and mother's joy, snatched from their embrace and hurried headlong to an untimely tomb. See the flower of youth and beauty shedding its fragrance and displaying its glory; but ere the morning dew has escaped on the breeze, it sickens, withers, and dies. Here the object of virtuous affection; there the promise of connubial bliss; this the hope of his country, and that the encouragement and consolation of religion—all poisoned by intemperance, all doomed to a premature and disgraceful death. Look at these and be admonished.

The following fact, as related by Prof. Sewall, is a serious warning to men who drink ardent spirits: "A man was taken up dead in the streets of London, after having drunk a great quantity of whisky. He was carried to Westminster Hospital and there dissected. In the

ventricles of the brain was found a considerable quantity of limpid fluid, impregnated with whisky, both to the sense of smell and taste, and even to the test of inflammability. The liquid appeared as strong as one-third whisky and two-thirds water."

What strange infatuation is it that tempts men to drink alcoholic liquors to excess, when facts and reason, and nature and religion, are continually warning them of the inevitable train of disasters and evils consequent thereon!

When our senses warn us of the immediate danger of a precipice close at hand, have we not prudence to avoid it, clinging to life as we do, with a cowardly tenacity? And when physicians demonstrate to us the poisonous, deadly influence of ardent spirits upon the system, and all experience illustrates the truth, why have men not sufficient sense and consistency to forsake the miserably foolish indulgence of drinking poison?

Above all, let me urge on those who would bring out and elevate their higher nature, to abstain from the use of spirituous liquors. This bad habit is distinguished from all others by the ravages it makes on the reason, the intellect; and these effects are produced to a mournful extent, even when drunkenness is escaped. Not a few men, called temperate, and who have called themselves such, have learned, on abstaining from the use of ardent spirits, that for years their minds had been clouded and impaired by moderate drinking, without their suspecting the injury. Multitudes in city and country are bereft of half their intellectual energy, by a degree of indulgence which passes for innocence. Of all the foes of the working class, this is the deadliest. Nothing has done more to keep down this class, to destroy their self-respect, to rob them of their just influence in the community, and to render profitless the means of improvement within their reach. They are called on to withstand this practice, as they regard their honor and would take their just place in society. They are under solemn obligations to give their sanction to every effort for its suppression. They ought to regard as their worst enemies, (though perhaps unintentionally such,) as the enemies of their rights, dignity, and influence, the men who desire to flood the country with distilled poison.

The most degraded, and the most wretched of human beings, is the man who has practiced this vice so long that he curses it and clings to it; that he pursues it because he feels an evil spirit driving him on toward it; but, reaching it, knows that it will gnaw his heart and make him roll himself in the dust with anguish and despair; and yet he says, "One glass more and I have done."

One more remark on this subject and I close: beware of "This once;" it has led its thousands to ruin.

# REFLECTIONS ON LIFE AND MORALITY.

## ADVICE TO THE UNMARRIED.

In the selection of a companion for life, it is proper that every effort should be made to avoid evil; for this express end we are endowed with qualities of foresight and prudence, and by permitting our passions to overrule our judgment in these matters, we frequently destroy our happiness and entail misery upon our offspring; by many this matter is entirely disregarded, and with others their danger lies in ignorance. I am well aware that this is a delicate subject, yet truth is my compass, and it is my duty fearlessly and honestly to point out the danger and the consequences which usually result from, and greatly affect, the married state, not only of the immediate parties but of their posterity. One of these laws bears reference to the consanguinity of the parties, or, in other words, where they are related to each other. All experience shows that an unsoundness of constitution is the probable inheritance of those who derive their existence from parents nearly allied in blood. Certain it is that the children of parents nearly allied in blood are, in many more instances, conspicuously unsound both in body and mind, than those of parents who stand in no relationship to each other. Often they pass well enough amid the crowd of mankind; and such instances are apt to be adduced in defense of a marriage of the kind in question. But these are exceptions to a rule, or, perhaps, we should rather say, that these are only instances, in which the unsoundness chances to be in small amount, or not sufficient to be observable in a community where so many are, from other causes, unsound. That there is a greater likeli hood of conspicuously unsound children from such marriages than from other causes, appears to be established beyond contradiction, which is enough for our argument. These marriages ought to be avoided, because in them there is danger incurred, without any of those good reasons or ends, which alone can sanction the running of any such heavy risk. It is very unfortunate that cousins, from the attachments of relationship, the freedom of intercourse in the same family, and other circumstances, should be apt to entertain for each other the tender feelings which give the desire for a matrimonial

union. But these are only reasons why greater care should be taken to warn all such persons against the danger in question. Friends, instead of encouraging it, as they often do, as a matter of policy, bringing cousins together for wealth, should exert all their eloquence to depict to them the terrible griefs which attend a progeny irremediably weak and liable to perish before their time. It would even be proper to make this a point in the education of all young persons; for what is of more importance than that persons entering into life, should be kept from a step which is likely to make life a scene of continual misery! Delicacy, it may be said, dictates silence on this subject; but certainly it must be a false delicacy which can impose such a restraint—a restraint as to words, while conduct is left free to the most disastrous errors. I have no doubt, that if circumstances made it possible or prudential for persons of different countries to marry, it would be much better, as they would thereby produce a vigorous race of people, both physically and mentally. For example, we see the advantages of crossing the breeds of animals, and the importance in agriculture of sowing grain which has been raised upon a different soil. These are illustrative facts, and if the same amount of knowledge and care, which has been taken to improve the domestic animals (as I have heretofore remarked), had been bestowed upon the human species in the last century, there would not have been so many moral patients for the lunatic asylum, or for our prisons, as at present. That the human species are as susceptible of improvement as the domestic animal, who can deny?

Then is it not strange that man, possessing so much information on this subject, and acknowledging the laws which govern such matters, should lose sight of these laws in perpetuating his own species? Yet how short-sighted is that individual, who, in forming a matrimonial connection, overlooks the important consideration of the quality of the physical and mental constitution which his children will likely inherit!

The time is fast approaching when we will have to pay more attention to this subject; for its importance is evident, and the facts easily substantiated. The parent should often be as much blamed as pitied for the bad morals and physical defects of his children. That the features, voice, and manner of parents are often transmitted to their children, is a fact, though it has not received so extensive application, as its importance demands. To those who have reflected upon this subject, it must be evident that peculiarities indicated by genius, infirmities of temper, and tendency to bodily ailments and disease, are hereditary. But we must take care not to identify the possession of genius with its determinate and successful display. The same facul-

ties which were allowed to remain dormant, or which were faintly exhibited in the parent, may, when transmitted to the child, and fostered by opportunity and education, with perhaps the additional incentives of self-love and firmness of purpose, shine out with distinguished brilliancy. Taste in the father is expanded into genius in the son; the same intellectual powers and peculiarities being possessed by both, the difference will consist in the superior vigor of the one over the other. We must also remember that whatever there is marked in the character of either mind or body, will be exhibited in the offspring, with modifications depending upon the similarity or difference in these particulars, between the father and mother. To solve the problem of hereditary qualities and illustrate the hereditariness of genius, is our design. Raphael's father was an artist. The mother of Vandyke was distinguished for painting flowers. The grandfather of the eccentric Benvenuto Cellini was an architect; and his father versed both in architecture and in drawing. Of Parmigiana's parents we know little, his father dying when young; but both his uncles were painters, and became his preceptors in an art, in some parts of which he rivaled Corregio himself. Tasaro's father gave him instructions in drawing. Vanloo, commonly called the Chevalier Carlo, State Painter under Louis XV, and an artist of deserved eminence, was the brother, son, grandson, and great grandson of painters. Horace Vernet, who ranks among the foremost of the modern French school, is the son of Charles Vernet, famous for his paintings of horses and farm-yard scenes, in which these animals are the chief figures; and grandson of Joseph Vernet, so celebrated for his marine views. A brother of the latter, though a bookseller, was fond of painting, which he sometimes practiced, and his pictures have been mistaken for those of Joseph. Titian's two younger brothers, and son, and nephew, and grand-nephew, were painters. The strong family resemblance of genius is well evinced in the Caracci, of whom Louis and his three cousins, Augustine, Annable, and Francis, were the distinguished heads of the Bolognese school of painting. Antonio, the son of Augustine, gave early promise of greatness in the same line.

In the sister art of music, similar instances of the inheritance and subsequent transmission of genius might be readily furnished. The father of the tender Mozart was a violinist of reputation; and the sister of this celebrated composer displayed as precocious a musical talent as himself. He left two sons, one of whom is a musical director at Lemberg. Beethoven was the son of a tenor singer. More than fifty music composers have proceeded from the family of John Sebastian Bach, a name so celebrated in musical literature.

Among the examples of inherited bodily infirmities and peculiarities of intellect and feeling in distinguished geniuses of later days, may be cited Johnson, Burns and Byron. The father of Dr. Johnson was (says Boswell) a man of large and robust body, and of a strong and active mind; yet, as in the most solid rocks, veins of unsound substance are often discovered, there was in him a mixture of that disease, the nature of which eludes the most minute inquiry, though the effects are well known to be a weariness of life. From him, then, (continues the biographer), the son inherited with some other qualities "a vile melancholy," which, in Johnson's own too strong expression of any disturbance of the mind, "made him mad all his life, at least not sober." Johnson's mother was a woman of distinguished understanding, of whom it was said, in reference to her probable elation at her son's celebrity, that although she knew his value, she had too much good sense to be vain of him. The scrofula, under which he suffered in early life, so much as to have his countenance disfigured, and to lose the sight of one of his eyes, was a part of his inheritance from his father, and the direct consequence of his peculiar bodily frame. In him was seen that precocity of intellect and facility of attainment which are so commonly associated with this disease.

Burns, who was constitutionally melancholy and hypochondriacal, derived also from his father a robust and irritable structure and temperament, both of body and mind. In features and general address, the poet bore a greater resemblance to his mother. From her he inherited that fondness for ballads and traditionary lore, which was the germ of his subsequent poetical greatness.

Of Byron's inherited peculiarities, we can not better speak than in the language of his biographer, Mr. Moore. "In reviewing," says this writer, "thus cursorily the ancestors, both near and remote, of Lord Byron, it can not fail to be remarked how strikingly he combined in his own nature some of the best, and perhaps worst, qualities that lie scattered through the various characters of his predecessors—the generosity, the love of enterprise, the high-mindedness of some of the better spirits of his race, with the irregular passions, the eccentricity, and daring recklessness of the world's opinion, that so much characterized others."

History furnishes us with no example of a man of inventive genius, or large general powers of understanding, who was born of imbecile parents, or, in other words, a foolish father or mother; and I assert, without fear of contradiction, that those who have figured most conspicuously on the great theater of life, have been indebted to inheritance for that vigor of intellect which has given them the mastery of their fellow beings. As an evidence of the fact, I refer you to the

name of one who is identified with the most astounding changes and revolutions in modern Europe. "The father of Napoleon Bonaparte," says Sir Walter Scott, "is stated to have possessed a very handsome person, a talent for eloquence, and a vivacity of intellect, which he transmitted to his son." And again he remarks: "It was in the midst of civil discord, fights, and skirmishes, that Charles Bonaparte married Letitia Ransoline, one of the most beautiful women of the island of Corsica, and possessed of a great deal of firmness of character. She partook of the dangers of her husband during the years of civil war, and is said to have accompanied him on horseback on some military campaigns, or perhaps hasty flights, shortly before being delivered of the future Emperor."

Frequent intermarriages among the members of a particular class, as nobility, royalty, or relations, is followed by a deterioration of the mental and physical energies. The tendencies to particular diseases which might, under different circumstances, have been rendered nugatory, now acquire a fearful force. In this way has been brought about the degeneracy, and even idiocy, of some of the noble and royal families of Spain and Portugal, who still persist in marrying near relations. From a similar cause proceeded the visible feebleness of character of the old French noblesse. They had become, to use the language of a distinguished medical writer of their own nation, rickety, consumptive, and insane. The revolution, he adds, brought about another race of men, with better hopes. Among other examples is one of a noble family, four successive generations of which were affected with aneurism, or morbid enlargement of the heart. Testimony equally strong, and to the same effect, is borne by the most experienced writers on insanity Dr. Burrows states, that hereditary predisposition to this disease could be distinctly ascertained in six-sevenths of his patients. He states that frequency of transmission is greater by a third on the part of the mother than of the father.

We find, then, in this inheritance and community of disease, reasons of a very imperative nature, distinct from moral and social considerations, why laws have been so generally promulgated, from Moses down to the present time, against persons intermarrying within certain limits of relationship. Love may be blind to laws which are firmly based on nature, and, while condemning, we must often pity its wanderings; but no such toleration ought to be extended to a union between members of the same family, brought about by heartless avarice or ambition, either to retain wealth or preserve a title, or otherwise, when the consequences are often the transmission, into another generation, of infirmities in an aggravated shape, which a more natural and honorable course might have

entirely prevented or mitigated. How many millions of the human family have been shipwrecked on the rock of marriage! If there be a pandemonium on earth, it is an ill-assorted marriage. For a woman not to love her husband, to possess none of that kindly and feminine affection which magnifies the excellence it finds, and softens away the very fault it discovers, is truly deplorable. Mutual indulgence is the only safeguard of domestic content.

Many a sigh is heaved—many a heart is broken—many a life is rendered miserable, by the terrible infatuation which parents often evince in choosing a life-companion for their daughters. How is it possible for happiness to result from the union of two principles so diametrically opposed to each other as virtue is to vice? And yet how often is wealth considered a better recommendation to a young man than virtue? How often is the first question which is asked respecting the suitor of a daughter, "Is he rich?" Is he rich? Yes, he abounds in wealth; but does it afford any evidence that he will make a kind and affectionate husband? Is he rich? Yes, his clothing is purple and fine linen, and he fares sumptuously every day; but can you infer that he is virtuous? Is he rich? Yes, he has thousands floating on every ocean; but do not riches sometimes take wings and fly away? And will you consent that your daughter shall marry a man who has nothing to recommend him but his wealth? Ah! beware! the gilded bait sometimes covers a barbed hook. Ask not, then, "Is he rich?" but "Is he virtuous?" Ask not, then, if he has wealth, but if he has honor; and do not sacrifice your daughter's peace for money, which is the root of all evil. How truly is it written, that "they that will be rich fall into temptation and a snare, and into many foolish and hurtful lusts, which drown men in destruction and perdition." Seek, then, for your children a good character, a well-trained mind, virtue, and, that purest of all earthly treasures, the hope of heaven. The consciousness of Divine approbation and support, and a steady hope of future happiness, imparts peace and joy, to which all delights of the world bear no resemblance.

The first question asked, "Is she rich?" If so, the wife becomes the purchaser of the husband, and she that can boast of having the largest fortune, has the greatest number of admirers. We can not but regret that so many of our own sex are so debased and degenerate, as to sacrifice every virtuous principle for the gain of riches. We would ask any reflecting mind, whether wealth can purchase virtue; whether it can secure for them that serenity of mind which is the result of a life of rectitude and prudence; and whether this will procure or elicit intrinsic love, that precious gift of heaven?

The greatest enemy of true love, in the present day, is the merce-

nary spirit of the times. The practice of forming matrimonial connections from mere pecuniary considerations is becoming entirely too frequent. Of course, matrimony, without reasonable prospect of income, is wrong. What we denounce is union for fortune, without suitableness of character, or sympathy of heart. Most of the unhappiness of the married state arises from the neglect of these things. How can parents, who do not themselves love, expect the education of the heart to prosper in their children? Half the sneering, selfish, unbelieving men of this world are the offspring of ill-assorted unions. If it could always be remembered that marriage affects not only the happiness of the pair entering into its bonds, but the weal and woe, temporal and eternal, of their progeny, it would be contracted with more deliberation, as true love would have more to do with it, and worldly pelf, less.

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## THE MOTHER.

The memories of childhood; the long, far-away days of boyhood, the dear mother's love and prayer, the voice of a dear departed playfellow, the ancient church and school-house, in all their sweet and hallowed associations, come upon the heart in the dark hour of sin and sorrow, as well as in joyous times, like the passage of a pleasantly-remembered dream, and cast a ray of their own hallowed purity and sweetness over them.

How all-powerful, for good or evil, is the influence of a mother! During those hours of infancy, passed in unavoidable seclusion, when the affections and mental powers can be molded into any form by the plastic hand of maternal love, then it is that the bent is taken for weal or woe, which all future life can not alter. The father, whether he hold a public station, or in private capacity, sees but little, and at distant intervals, of his children, and has hardly time to salute them with a hurried embrace and a kiss of tenderness, before his avocations summon him again into the great world, to engage once more in its engrossing pursuits. But the mother, for whom domestic life has a charm, exercises over their nascent powers an influence proportionate to her good sense and attachment to the idols of her heart—omnipotent, though imperceptible—and it is not too much to say, that the kindly sympathies and swelling affections of youth and mature manhood can be traced to childhood, while lying at a mother's feet, or listening, with head on her knees, to her mild words

While the confiding voice of childhood appeals to her in doubt, danger, or distress, she feels that by her child she is almost invested with the attributes of Deity. While it is nestling itself in her arms and hanging with unbounded credulity upon her words, her spirit is startled into fresh resolves of perfection, by the fearful conviction that she is its book of wisdom, love, and beauty; and, if a Christian mother, she searches, with an almost agonizing anxiety, for the best possible means of transferring the earth-bound devotion of her child to *Him*, who is alone worthy of worship. As often as the consciousness of her unbounded influence flashes upon the Christian mother's heart, it is followed by the conviction that her image should hold only a secondary place in the affections of that being who has been the burden of her days and nights of care; and while she labors and prays that it may be even so, who can paint the desolation that settles upon her soul, and makes her cling closer to her hopes of heaven, as imagination, stealing long years ahead, gives her child a companion and offspring, thus removing her, in care-worn age, from the second even to the fourth place in its regard.

Philosophers have analyzed, divines lectured, and poets sung of maternal love; but which of them has brought from its fountains, to the heart of man, those nameless, numberless, impassioned sympathies which make the melody of a mother's tenderness? No, there is nothing like it. In all after years we may set our heart on what joy we will, but we shall never find any thing on earth like the love of a mother. Perhaps a more beautiful compliment was never paid to female character than that rendered by the late John Randolph, of Roanoke. When minister to France, he said he was kept from whirling down the tide of infidelity, which was then carrying every thing before it, by the remembrance that when a child his dear mother would put his little hands together, and teach him to say, "Our Father, who art in Heaven!" Touchingly beautiful as is this little story, it is but the history that thousands of others might relate with equal interest. Oh! man, canst thou read, through the tear that trembles in the mother's eye, the piercing grief of her soul, as, gazing upon the fond prattler, the thought obtrudes itself that all her pains, her sleep-dispelling solicitude, and above all, the strength and devotedness of her love, may be repaid with ingratitude! When the vail of death has been drawn between us and a mother, how quick-sighted do we become to her merits, and how bitterly do we then remember every word or look of unkindness which may have escaped us! How careful should such thoughts render us in the fulfillment of those offices of affection which it may yet be in our power to perform; for who can tell how soon the moment may arrive when repentance can



VICTORIA.

*The Queen Mother*

not be followed by reparation? Immediately after the organization of the present government, General Washington repaired to Fredericksburg, to pay his humble duty to his mother, preparatory to his departure to New York, when an affecting scene ensued. The son feelingly remarked the ravages which a lingering disease had made upon the aged frame of his parent, and thus addressed her: "The people, mother, have been pleased, with the most flattering unanimity to elect me to the chief magistracy of the United States, but before I can assume the functions of that office, I have come to bid you an affectionate farewell. So soon as the public business, which must necessarily be encountered in arranging a new government, can be disposed of, I shall hasten to Virginia, and——" Here the matron interrupted him: "You will see me no more, my dear son; my great age, and the disease that is fast approaching my vitals, warn me that I shall not be long in this world. I trust I am somewhat prepared for a better. But go, George, fulfill the high destiny Heaven appears to assign you; go, my son, and may that heaven's and your mother's blessing be with you always." The President was deeply affected. His head rested upon the shoulder of his parent, whose aged arm feebly, yet fondly, encircled his neck. That brow, on which fame had wreathed the greatest laurel virtue ever gave to created man, relaxed from its lofty bearing. That look which could have awed a Roman Senate in its Fabian day, was bent in filial tenderness upon the time-worn features of this venerated mother. The great man wept. A thousand recollections crowded upon his mind, as memory, retracing scenes long past, carried him back to his paternal mansion, and the days of his youth; and there the center of attraction was his mother, whose care, instruction and discipline had prepared him to reach the topmost hights of laudable ambition; yet how were his glories forgotten while he gazed upon her from whom, wasted by time and malady, he must soon part to meet no more on earth! The matron's predictions were true. The disease which had so long preyed upon her frame, completed its triumph, and she expired at the age of eighty-five, confiding in the promises of immortality to the humble believer.

"A good boy generally makes a good man," said the mother of Washington; "George was always a good boy." Here we see one great secret of his greatness. George Washington had a mother who made him a good boy, and instilled into his heart those principles which raised him to the benefactor of his country, and one of the brigntest ornaments of the world. The mother of Washington is entitled to a nation's gratitude. She taught her boy the principles of obedience, and moral courage, and virtue. She, in a great measure,

formed the character of the hero and the statesman. It was by her own fireside that she taught her playful boy to govern himself, and thus was he prepared for the brilliant career of usefulness which he afterward pursued. We are indebted to God for the gift of Washington; but we are no less indebted to Him for the gift of his inestimable mother. Had she been a weak, and indulgent, and unfaithful parent, the unchecked energies of Washington might have elevated him to the throne of a tyrant, or youthful disobedience might have prepared the way for a life of crime and a dishonored grave.

Byron had a mother just the reverse of lady Washington: and the character of the mother was transferred to the son. We can not wonder, then, at his character and conduct, for we see them to be the almost necessary consequence of the education he received, and the scenes he witnessed in his mother's parlor. She would, at one time, allow him to disobey with impunity; again she would fly into a rage and beat him. She thus taught him to defy authority, human and divine; to indulge without restraint in sin; to give himself up to the power of every maddening passion. It was the mother of Byron who laid the foundation of his pre-eminence in guilt. She taught him to plunge into that sea of profligacy and wretchedness, upon whose agitated waves he was tossed for life.

Were the affections of the mother felt and cherished by her children with corresponding sympathy, doubtless this earth would exhibit much more of heaven than at present. A mother teaching her child to pray is an object at once the most sublime and tender the imagination can conceive. Elevated above earthly things, she seems like one of those guardian angels, the companion of our earthly pilgrimage, through whose ministration we are inclined to do good and turn from evil. A dear mother is the first to fold and shield our puny frames, the last to desert our clay-cold forms; the rich, rejoicing, fresh, lovely, and exuberant vine to twine in graceful fitness round the rugged oak of manhood, clinging the closer the louder the storm blows and the thunder roars. There is something indescribably lovely in a devotedly pious mother. Something that reminds the soul at once of those bright angelic spirits which surround the throne of God; that calm serenity and composure, those eyes which beam with looks of holy tenderness and compassion for immortal souls.

It was December. The ground was covered with snow, the north wind blew violently, and whistled as it passed among the willows that shaded the tombs of the graveyard of the village of Peasley. A watchman was finishing his nightly rounds. At that moment the moon cast her pale beams over that portion of the burial ground appropriated to the poor; the sound of some one in great distress

attracted his attention, and, as he approached a new-made grave, he found a young child, who, extended on the ground, was endeavoring to dig the earth up with his little hands. It was poor Paul, left an orphan in the village but two days before. "What are you doing there, my boy?" said the watchman. The poor boy raised his head and wiping the tear from his cheeks replied, "I am looking for my poor mother." The watchman, affected by the answer, took the child in his arms and carried him from the mournful place. For several days he was carefully watched; however, he soon stopped crying, and every one thought he had got over his sorrows; but about a month after, during a night still colder, he was found lying on his mother's grave, dead. The poor orphan had found her! The next day he was buried by her side. "Blessed are the poor in spirit, for they shall see God." If the love of a mother surpasses all earthly love, you, who are a son, ought, with the full measure of gratitude, to return her affection. You are bound to her by the strongest ties, treat her with never-failing tenderness. She will love you, whatever be your character, but let her have cause to glory in her child. Disappoint not her hopes; do not, by your vices, plunge a sword into her bosom; do not break her heart; do not compel her to wish that God would hide her in the grave. Look to Jesus, the pattern of every excellence; love your mother as he loved his mother; obey, honor, cherish, and protect her, as he obeyed his earthly parent. Finally, imprint on your mind the words of the wise man: "He that is obedient unto the Lord will be a comfort to his mother." Remember that thou wast born of her, and how canst thou recompense her the things she has done for thee? Forget not, then, the sorrows of thy dear mother.

In no situation, and under no circumstances, does the female character appear to such advantage as when watching beside the bed of sickness. The chamber of disease may, indeed, be said to be woman's home. We there behold her in her loveliest, most attractive point of view; firm, without being harsh; tender, yet not weak; active, yet quiet; gentle, patient, uncomplaining, vigilant. Every sympathetic feeling that so peculiarly graces the feminine character, is there called forth; while the native strength of mind, which has hitherto slumbered in inactivity, is roused to its fullest energy. With noiseless steps she moves about the chamber of the invalid; her listening ear, ever ready to catch the slightest murmur; her quick, kind glance to interpret the unuttered wish, and supply the half-formed want; she smoothes with careful hand the uneasy pillow which supports the aching head, or with cool hand soothes the fevered brow, or proffers to the parching lip the grateful draught, happy if she meet one kind

glance in payment for her labor of love. Hers is the low, whispering voice which breathes of life and hope, of health in store for happy days to come; or tells of better and of heavenly rest, where neither sorrow nor disease can come; where the dark power of death no more shall have dominion over the frail, suffering, perishable clay Through the dim, silent watches of the night, when all around are hushed in sleep, it is hers to keep lone vigils and to hold communion with her God, and silently lift up her heart in fervent prayer for the prolongation of a life for which she cheerfully would sacrifice her own. And even when exhausted nature sinks to brief repose, forgetfulness is denied. Even in sleep she seems awake to this one great object of her care. She starts and wakes from her sleep, raises her drooping head, watches with dreamy eyes the face she loves, then sinks again to rest, to start with every chime of the clock, or distant sound which formerly had passed unheard, or perhaps served to lull her to deeper slumbers.

How lovely does the wife, the mother, the sister, or the friend, become to the eye of grateful affection while ministering ease, comfort, nay, almost life itself, to the husband, the son, the mother, or the friend!

A mother's love! How thrilling the sound! The angel spirit that watched over our infant years and cheered us with her smile. Oh! how faithfully does memory cling to the fast fading mementoes of a parent's home, to remind us of the sweet counsels of a mother's tongue! And, oh! how instinctively do we hang over the scenes of our boyhood, brightened by the recollections of that waking eye that never closed while a single wave of misfortune or danger flowed around her child! Like the lone star of the heavens in the deep solitude of nature's night, she sits the presiding divinity of the family mansion, its delight and charm, its stay and hope, when all around her is overshadowed with the gloom of despondency and despair.

There does not exist in human nature a more perfect exhibition of true affection than that which a mother bears toward her children. Love, in its true character, is of Divine origin, and an emanation from that spirit who himself is love, and though often degraded on earth, we yet find it pure, sublime, and lasting within the maternal heart. Man is frequently captivated by mere external graces, and he dignifies that pleasure which all experience in the contemplation of the beautiful, by the title of love; but a mother makes no distinction, she caresses the ugly and deformed with kindness equal to, if not surpassing, that she bestows on the more favored. Too frequently are interested motives the basis of apparent affection, but it is not so with her, who clings most fondly to her children in their poverty, their misfortunes,

and their disgrace. The silken chain with which we are bound one to the other, is sometimes broken with facility; a word, a look, may snap the links, never to be reunited; friendship decays or proves false in the hour of need; we almost doubt the existence of constancy—away with this doubt while the maternal heart continues as a temple for the dwelling of God's holiest attribute.

She has watched her infant from the cradle; she will not desert him until separated by the grave. How anxiously she observes the budding faculties, the expansion of mind, the increasing strength of body! She lives for her child more than for herself, and so entwined has her nature become with his, that she shares in all his joys, and, alas! in all his sorrows. "Not because it is lovely," says Herder, "does the mother love her child, but because it is a living part of herself—the child of her heart, a fraction of her own nature. Therefore does she sympathize with his sufferings; her heart beats quicker at his joys; her blood flows more swiftly through her veins, when the breast at which he drinks draws him more closely to her." If her son falls into poverty; a bankrupt in fortune; is shunned by former acquaintances and despised by most of his fellow beings, there is one who, like a ministering angel at his side, will cheer his despondency, encourage him to renewed exertions, and is ever ready to become a slave for his sake. If he is exposed to censure, whether merited or unmerited, and all men rush to heap their *virtuous* indignation on his head, showing no pity for a fallen brother, but rather shun and curse him, she who gave him life will be the more desirous to comfort him! She can not believe the charge; she will not rank herself among his foes. And if at length the sad statement be established, she still feels that he has not thrown off *every* claim, and if an object of blame, he is also one of pity. Her heart may break, but it can not cease to love him. In the moments of sickness, when stretched on the bed of pain, dying perhaps from a contagious disease, he is deserted by his professed friends, who *will* not, and care not to approach him—one nurse will be seen attending him; she will not leave his precious existence to the care of hirelings, though now every instant in his presence seems an hour of agony. His groans penetrate her heart, but she will not let him hear the sad response; she weeps, but turns away, lest he should see her tears. She guards his slumbers, presses his feverish lips to hers, pours the balm of religion on his spirit, and points him to the mercy of that Judge before whom he may shortly appear. When all is silent, she prays for his life, and if that may not be, for his happiness in the life to come.

He dies. The shock possibly deprives her of life, or, if not, she

lives as one desolate and alone, anxiously looking forward to that world where she may meet her darling child, never to part again.

With equal simplicity and eloquence, the tender affection of Hagar for her child is expressed in the Old Testament. In a wilderness, parched with thirst and fainting from fatigue, she beholds her infant—her only companion—dying from want of nourishment. The water-bottle was empty. Placing her boy beneath a shrub, and moving to some distance, she cried, "Let me not see the death of my child! Let me not behold the severance of those ties which nature compels me to support and cherish; let not mine eyes witness the gradual departure of that angel spirit, which I had hoped would afford me comfort and consolation in my declining years." And "she lifted up her voice and wept," but she was not left childless, "for God was with the lad."

If we reflect upon the inestimable value of such a parent, we can appreciate the beauty of the Psalmist's expression, when he compares himself, laboring under the extreme of grief, to one "*who mourneth for his mother.*" And was it not in accordance with the perfect character of our Saviour, that some of his last thoughts should be for the welfare of her who had followed him through all his trials? When extended on the cross, pointing to the disciple whom He loved, He said to Mary, "Woman behold thy son," and to the disciple, "Behold thy mother! And from that hour the disciple took her to his own home."

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## TO WIVES.

THE first inquiry of a woman after marriage should be, "How shall I continue the love I have inspired? How shall I preserve the heart I have won?"

Marriage is a solemn and an important event. I care not respecting the circumstances that may surround it; nor does it matter whether the rite be performed in Friend-like simplicity, or by every ceremony calculated to impress the senses, yet the importance of it remains, the awful responsibility continues. It may have been brought about by selfish and interested motives; it may be the result of parental authority, or it may, as it ought always to be, the result of pure love and strong attachment; yet in either case, it is alike binding for life, and will be the cause of happiness or misery, not only through time but in eternity.

How much, then, depends on this step, and what feelings press upon the mind! The home of childhood, the family circle, the loving

mother, the kind father, the affectionate brother and sister, are all to be left, and another is to be your bosom companion—another to be the sharer of your joys and sorrows, your griefs and cares. New scenes, new duties, new trials, and new circumstances, will surround you, and you are now to act and live for others. Insincerity at the bridal altar is a crime of the blackest character, and she who would be false there, would be false any-where; and she who would be untrue at such a time, would be untrue on any occasion. But where all is sincerity, confidence and love, happiness is present indeed, and will continue through life. Changes can not alter their affection for each other; afflictions only bind them the closer. Cares and anxieties only afford opportunities for the exercise of sympathy, and every year unites them by nearer and dearer ties. Marriage places woman in that sphere where she may attain the greatest happiness, so does it advance her to a station of power and responsibility. Her power over her husband's happiness is almost absolute. By wisdom, by steadiness, by forbearance, by meekness, she may be to him a tower of strength; but no tongue can tell the ways in which she may annoy him and render him wretched.

Then cultivate and exhibit, with the greatest care and constancy, cheerfulness and good humor; they give beauty to the finest face, and impart charms where charms are not. On the contrary, a gloomy, dissatisfied manner, is an antidote to affection; and though a man may not seem to notice it, it is chilling and repulsive to his feelings, and he will be very apt to seek elsewhere for those smiles and that cheerfulness which he finds not in his own house. Endeavor to make your husband's habitation alluring and delightful to him. Let it be to him a sanctuary to which his heart may always turn from the calamities of life. Make it a repose from his care, a shelter from the world, a home not for his person only, but for his heart. He may meet with pleasure in other houses, but let him find pleasure in his own. Should he be dejected, soothe him; should he be silent and thoughtful, do not heedlessly disturb him; should he be studious, favor him with all practicable facilities; or should he be peevish, make allowances for human nature; and by your sweetness, gentleness, and good humor, urge him continually to think, though he may not say it, "This woman is indeed a comfort to me; I can not but love her, and requite her gentleness and affection." Particularly shun what the world calls "curtain-lectures." When you shut your door at night, endeavor to shut out, at the same moment, all discord and contention, and look on your chamber as a retreat from the vexations of the world—a shelter sacred to peace and affection.

How indecorous, offensive, and sinful it is for a woman to exercise

authority over her husband, and say, "I *will* have it so. It *shall* be as I like." But I trust that the number of those who adopt this unbecoming and disgraceful manner, is so small as to render it unnecessary for me to enlarge on the subject.

The aims of a wife should lead her to become the friend, the partner, the consoler of her husband, to educate her children, to shun every approach to extravagance. The want of economy has involved millions in misery. The power of a wife for good or evil, is altogether incalculable. Home must be the seat of happiness, or a curse will rest upon it.

A good wife is to a man wisdom, and courage, and strength, and hope, and endurance. A bad one is confusion, weakness, discomfiture, and despair. No condition is hopeless, when the wife possesses firmness, decision, energy, and economy. There is no outward prosperity which can counteract indolence, folly, and extravagance at home. No spirit can long resist bad domestic influences. Man is strong, but his heart is not adamant. He delights in enterprise and action, but to sustain him he needs a tranquil mind and a whole heart. He expends his whole moral force in the conflicts of the world. His feelings are frequently lacerated, to the utmost point of endurance, by collisions, irritations, and disappointments. To recover his equanimity and composure, home must be to him a place of repose, of peace, of cheerfulness, of comfort; then his soul renews its strength, and will go forth, with fresh vigor, to encounter the labor and troubles of the world. But if at home he finds no rest, and *there* is met with bad temper, sullenness, or gloom; or is assailed by discontent, complaint, and reproaches, the heart breaks, the spirits are crushed, hope vanishes, and the man sinks into despondency. Every wedded pair might be happy did they but bear each other's burdens, and strive with half the zeal they sometimes exert to make each other miserable, to contribute to each other's mutual happiness.

We conceive of no more heaven-like circle than is embraced within the limits of a virtuous and happy family. There is nothing beneath the skies more ennobling to human nature than such a household, where mildness and virtue, kindness and love, industry and peace, go hand in hand together; where a contented and cheerful spirit chases away the gloom of the world, and religion, with her sweet lessons of philosophy, softens and purifies the heart; where the head of the family is recognized and respected as such, and the greatest happiness within the circle is derived from his approving smile; where the low, sweet voice of woman is seldom heard but in accents of gentleness and love, and the name of mother is never uttered unassociated with some endearing epithet. Such a family can only be collected together

under the influence of a happy marriage—a union of hearts as well as hands; a tie consecrated by pure and chaste affection; an engagement formed on earth but sanctioned in heaven. On such a union the angels, who dwell in the bright abode of the blest, must turn their eyes and gaze with looks of interest and delight.

The gem of all others which enriches the coronet of a woman's character is unaffected piety. Nature may lavish much on her form—the beauty of her countenance—the grace of her mien—the strength of her intellect; yet her loveliness is uncrowned till piety throws around the whole the sweetness and power of its charms. She then becomes celestial in her desires and aspirations. The spell which bound her affections to the things below is loosened, and she mounts on the silent wings of faith and hope to the habitations of God, where it is her delight to hold communion with the spirits that have been ransomed from the thralldom of earth and wreathed with garlands of glory. Her beauty may throw a magical charm over many; princes and conquerors may bow with admiration at the shrine of her loveliness; the sons of science may embalm her memory in the page of history; yet her piety must be her ornament, her pearl. Her name must be written in the "Book of Life," that when the mountains fade away, and every memento of earthly greatness is lost in the general wreck of nature, it may remain and swell the list of that mighty throng who have been clothed in the mantle of righteousness. With such a treasure every lofty gratification on earth may be possessed—friendship will be doubly sweet—pain and sorrow will lose their sting, and the character will be worth a price far above rubies; life will seem but a pleasant visit to earth, and death usher the soul to a joyful and perpetual home. And when the notes of the last trump shall be heard, and sleeping millions awake to judgment, its possessor shall be "presented faultless before the throne of God."

No man ever prospered in the world without the coöperation of his wife. If she unites in mutual endeavors, or rewards his labors with an endearing smile, with what confidence will he resort to his merchandise or his farm, travel over lands, sail upon seas, meet difficulty, and encounter danger—for he knows that he is not spending his strength in vain, but that his labor will be rewarded by the sweets of home Solicitude and disappointment enter the history of every man's life, and he is but half provided for his voyage who finds but an associate for happy hours, while for his months of darkness and distress no sympathizing partner is at hand.

Two persons who have chosen each other out of all the species, with the design to be each other's mutual comfort and entertainment, have in that action bound themselves to be good-humored, affable, discreet

forgiving and patient, with respect to each other's frailties and imperfections, to the end of their lives.

I have often had occasion to remark the fortitude with which women sustain the most overwhelming reverses of fortune. Those disasters which break down the spirit of a man, and prostrate him in the dust, seem to call forth all the energies of the softer sex, and give such intrepidity and elevation to their character that at times it approaches to sublimity. Nothing can be more touching than to behold a soft and tender female, who had been all weakness and dependence, and alive to every trivial roughness, while treading the prosperous paths of life, suddenly rising in mental force to be the comforter and supporter of the husband under misfortune, and abiding with unshrinking firmness the bitterest blasts of adversity.

With a true wife a husband's faults should be sacred. A woman forgets what is due to herself when she condescends to that refuge of weakness, a female *confidante*. A wife's bosom should be the tomb of her husband's failings, and his character far more valuable, in her estimation, than his life. If this be not the case, she pollutes her marriage vow.

Such a wife may do much for her partner in life, for her family, for society, for the world; she will be truly blessed with the favor of God, and in death will have an approving conscience—having faithfully discharged her duty.

There is nothing under heaven so delicious as the possession of pure, fresh, immutable affection. The most felicitous moment of a man's life, the most ecstatic of all his seasons of delight, is that in which he receives an avowal of affection from the idol of his heart. The springs of feeling, when in their youthful purity, are fountains of unsealed and gushing tenderness—the spell that once draws them forth is the mystic light of future years, and undying memory. Nothing earthly is so pure and devoted as a true woman's love. It matters not whether it be for a husband, or child, or sister, or brother, it is the same pure, unquenchable flame, the same constant and immaculate glow of feeling, whose undeniable touchstone is trial. Give her but one token of love, one kind word, one gentle look, even if it be amid desolation and death—the feelings of that faithful heart will gush forth as a torrent, in despite of earthly bond or mercenary tie. More priceless than the gems of Golconda is the female heart; and more devoted than the idolatry of Mecca is woman's love. There is no sordid view or qualifying self-interest in the feeling. It is a principle and characteristic of her nature—a faculty and infatuation which absorbs and concentrates all the fervor of her soul, and all the depths of her bosom. I would rather be the idol of one unsullied and

unpolluted heart, than the monarch of empires. I would rather possess the immaculate and impassioned devotion of one high-souled and enthusiastic female, than receive the sycophantic fawning of millions.

How sweet is the society of a beloved wife, when wearied and broken down with the labors of the day! She solaces him with her endearments and soothes him with her tender care. The solicitude, the anxieties, and the heavier misfortunes of life, are hardly to be borne by him who has the weight of business and domestic cares at the same time upon him. But how much lighter do these seem, when, his necessary avocations being over, he returns to his home, and finds there a partner of his griefs and troubles, who takes, for his sake, her share of domestic labor, and soothes the anguish of his fretted life! A wife is not, as she is falsely represented and esteemed by some, a burden or a sorrow to man. No! she shares his burdens, and alleviates his sorrows; for there is no difficulty so heavy or insupportable in life, that it may not be surmounted by the mutual labors and the affectionate concord of that holy partnership.

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## VIRTUE.

"'T is said of widow, maid, and wife,
That honor is a woman's life."

THERE is nothing, perhaps, in which the boasted superiority of man over the female part of creation is marked with a blacker line, than the impunity it affords him in the commission of crimes which stain the character of woman with everlasting infamy. One false step, one deviation from the path of virtue, ruins her forever. No sooner does her fault become known, than she is the butt of scandal, and a mark for the finger of scorn. Her former friends slight and neglect her; her invidious enemies triumph in her ruin; the neighbors resound her disgrace; she is the scorn of her own sex and the sport of man; the virtuous shun her company as a dangerous infection; the eyes of modesty are averted at her approach, and the cheeks of innocence redden with a blush. Men of honor treat her with neglect, and libertines with saucy freedom. Nor is this all; she has many pangs to suffer from those who are her superiors only in artifice and cunning, and who, while they are equally guilty, owe all their apparent innocence to that craft which preserved them from detection. Driven from society, an outcast and forlorn, what can she do? Forsaken by him who

should have been her preserver, neglected and despised, she becomes a prostitute for bread. She wanders away from her native village; whither she goes none care, and but few inquire; her degradation is complete. From the fashionable, she becomes the drunken and the public harlot; diseased, she is taken to the hospital or poor-house to die; is sent to the medical college for dissection, and in the lime-sink her bones are deposited.

Reformation in the most abandoned of men is a matter of occasional observance; and temporary aberrations from the straight path of virtue with them, without irretrievable confirmation in their errors, are instances of frequent occurrence. But the form of woman once tainted, the corruption is irremediable; the fountain of her thoughts once poisoned, there is no purity that can ever flow therefrom; once chained to crime, her fetters are seemingly riveted for life.

When the drear winter throws his mantle over nature, and strips the verdure of the forest and the plains, and binds his icy fetters on the limpid stream, there is a happy anticipation that the vernal season will come again; the stream will flow gracefully and lightly as before; the trees will again toss their cumbrous loads of greenness to the sunlight, and, by mossy stone and winding rivulet, the young blossom will start up as at the bidding of the fairy guardians. But the heart of woman has no change like that of nature—it has no second spring-time. Once blighted in its hours of freshness, it wears forever the mark of the spoiler. The dews of affection may fall, and the gentle rain of sympathy be lavished upon it, but the sere root of blighted innocence will never again waken into life, nor the cherished flowers of hope blossom with their wonted beauty.

A large experience has taught me that, in a majority of cases, offenders exposed before human tribunals, the object of all earthly penalties, (which are, or ought to be, only inflicted for the prevention, and not the punishment of crime), will be led to reform quite frequently, when of the male sex; but that woman, once arraigned, seldom concludes her iniquitous drama until death draws the curtain upon her. My practice has presented to me many appalling evidences of the irresistible truth of my conclusion; and as I have received them from the living impress, so have I recorded them with nothing extenuated, and surely I may add, nor aught set down in malice to the sex.

Beware, my daughter, beware of vice! The path of virtue is that of happiness, and rectitude of conduct will reward itself. Let a remembrance of the sad consequences ever guard you against the arts of a seducer. Whatever arguments may be used by the specious deceiver, remember that he who would lead you from the paths of

virtue is your inveterate enemy, and, whatever may be his pretense, his object is your ruin.

Virtue is of intrinsic value, and of indispensable obligation; not the creature of will, but necessary and immutable; not local or temporary, but of equal extent and antiquity with the Divine mind; not a mode of sensation, but an everlasting truth; not dependent on power, but the guide to power. Virtue is the foundation of honor and esteem, and the source of all beauty, order, and happiness in nature. It is what confers value on all the other endowments and qualities of a reasonable being, to which they ought to be absolutely subservient, and without which the more eminent they are, the more hideous deformities and the greater curses they become. The use of it is not confined to any one stage of our existence, or to any particular situation we can be in, but extends through all periods and circumstances. Many of the endowments and talents we may now possess, and of which we are too proud, will cease entirely with the present state; but this will be our ornament and dignity in every future state to which we may be removed. Beauty and wit will die, learning will vanish away, and all the arts of life be soon forgot, but virtue will remain forever. This unites us to the whole rational creation, and fits us for conversing with any order of superior natures, and for a place in any part of God's works. It procures us the love and approbation of all wise and good beings, and renders them our allies and friends. But what is of unspeakably greater consequence is, that it makes God our friend, assimilates and unites our minds to His, and engages His almighty power in our defense. Superior beings, of all ranks, are bound by it no less than ourselves. It has the same authority in all worlds that it has in this. The further any being is advanced in excellence and perfection, the greater are his attachments to it, and the more he is under its influence. To say no more, it is the law of the whole universe; it stands first in the estimation of the Deity; its original is his nature, and it is the very attribute that makes him lovely.

Such is the importance of virtue. Of what consequence is it not, therefore, that we practice it? There is no argument or motive which is at all fitted to influence a reasonable mind, which does not call us to this. One virtuous disposition of soul is preferable to the greatest natural accomplishments and abilities, and of more value than all the treasures of the world. If you are wise, then, study virtue, and contemn every thing that can come in competition with it. Remember that nothing more deserves our anxious thought or wish; that this alone is honor, glory, wealth, and happiness. Secure this, and you gain greatly; lose this, and much is lost.

Virtue is one of the most noble and sure possessions that a man can have. Beauty is worn out by time, or impaired by sickness, riches lead youth rather to destruction than welfare, and without prudence are soon lavished away; while virtue alone, the great good, that is ever durable, may always remain with the person that has once entertained her. She is preferable to wealth and a noble extraction. What a power there is in innocence! whose very helplessness is its safeguard—in whose presence even Passion itself stands abashed, turning worshiper at the very altar it came to despoil.

The vicious may prosper for a season, but virtue will triumph at last. The apparent success of the wicked should not discourage those who endeavor to live uprightly and consistently. If they live to see the end of the unrighteous, they will not feel a particle of envy at their success. A man may live long—be vile and unprincipled—and prosper through all his days; but does this prove that it is well with the vicious? Far from it. Mysterious are the workings of Providence; but the time will come when we shall see the wisdom of all the dealings of God. It is the testimony of revelation—it is the opinion of the wise and good of all ages—that the wicked shall not go unpunished. There is nothing like true virtue—purity of heart—to produce happiness and perfect peace of mind.

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## TO HUSBANDS.

THE happiness of the wife is committed to the care of the husband Prize the sacred trust, and never give her cause to repent the confidence she has reposed in you. In contemplating her character, recollect the materials human nature is composed of, and expect not perfection. Do justice to her merits, and point out her faults with kindness. I do not ask you to treat her errors with indifference, but endeavor to amend them with wisdom, gentleness and love. Do not jest about the bonds of a married state; and make it an established rule to consult your wife on all proper occasions. Your interest is hers; and undertake no plan contrary to her advice and approbation, for thousands have been ruined by neglecting this; then, if the affair turns out ill, you may not suffer from her reproaches or your own regrets. There is a sagacity, a penetration and foresight into the probable consequences of events, characteristic of her sex, which, conferred by Divine Providence, renders her opinions and advice peculiarly valuable and salutary. If you have any

acquaintances—particularly females—whom, on reasonable grounds, your wife wishes you to avoid, do so. Never witness a tear from your wife with apathy and indifference. Words, looks, actions, all may bear evidence of the feelings; but a tear comes direct from the heart, and speaks at once the language of nature and sincerity. Be assured, when you see a tear on her cheek, her heart is touched, and do not, I again repeat it, do not behold it with coldness or insensibility. How simple and unaffected, and yet how eloquent, is a tear. It is the unequivocal language of the heart; it is the impassioned eloquence of feeling, before which the pomp and gloss of speech fade as the orient pearly dew-drop before the morning sun. It must be an adamantine heart, indeed, in which the responsive chord of sympathy does not respond to the tear of his wife. Remember, she is given to you by your Heavenly Father to soothe the trials of life; that she has many cares and sufferings to encounter of which you are not aware; then soothe her wounded and troubled spirit, and let the bright beams of hope, joy, and happiness, again illumine her countenance. Oh! if there be melody on earth, it lives in the soft accents of a sensitive woman, breathing forth her sorrows from life's beating fountain. Let her errors be overlooked, and remember that you yourself are not perfect. A penitent tear is the most propitious atonement that an humble spirit can offer at the shrine of God; it is the signet of heaven, with which the recording angel seals the pardon of an offending but contrite heart.

Of all the gratifications human nature can enjoy, and all the delight it is formed to impart, none is greater than that which springs from the mutual affection of man and wife. The happiness which arises from conjugal felicity, is capable of withstanding the attacks of time, grows vigorous in age, and animates the heart with pleasure and delight through life.

No man ever prospered in the world without the consent and coöperation of his wife. Let him be ever so frugal, industrious, or successful, it avails nothing. But if she unite in mutual endeavors, or rewards his labor with an endearing smile, with what confidence will he resort either to his merchandise, or farm, perform the most laborious work, sail upon the sea, meet every difficulty, and encounter every danger, for he knows that his labor will be rewarded by the sweets of home and the smile of that dear wife, whose affectionate welcome and tenderness repay him for every grief and pain; even misery loses the poignancy of its grief in that bosom, formed for sympathetic kindness.

Let contradiction and ill-nature be avoided at all times; remember the loving, faithful wife has other woes to endure than you are aware

of, which delicacy prevents me from explaining. She has, at certain times—for it is her allotment—to feel and to encounter pain and suffering, which demand patience and man's sympathy and forbearance. Then wound not, nor upbraid your wife; if suffering of any kind assail her, your tenderness and attention are particularly called for. A look of love, a word of pity, or sympathy is sometimes better than medicine. This, of all others, is the time to establish nd strengthen that love which time and circumstances can never eradicate. It is difficult to imagine what a blessing sweet words of kindness may confer at a time like this. These subdue pain, penetrate the heart, and alleviate every painful emotion.

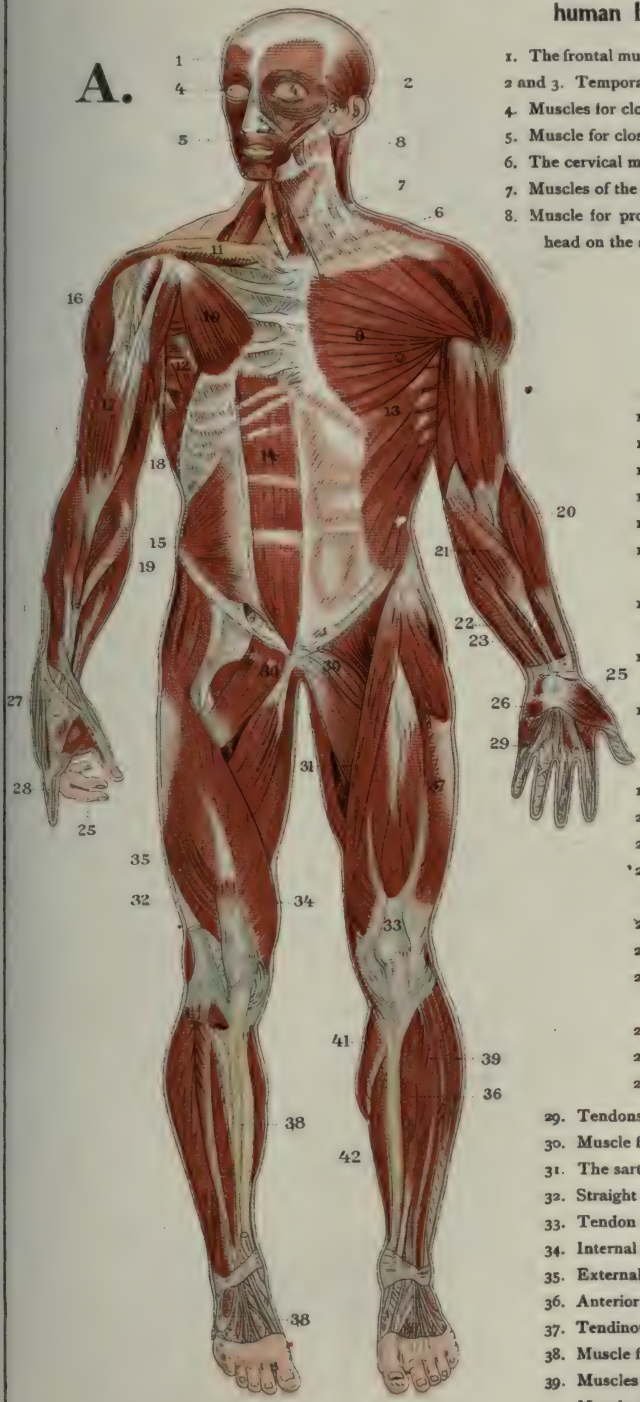
Never reproach your wife with any personal or mental defect, for long experience has taught me that a plain face conceals, quite frequently, a heart of exquisite sensibility and merit; and the consciousness of any defect makes her awake to the slightest attention or jesting on this subject, more particularly when in the presence of others. Let your wife's laudable pride be indulged, by your showing that you think her an object of the greatest importance, and preferable to other women. The most trivial word, or act of attention and love from you, gratifies her feelings; and a man never appears to more advantage than in proving to the world his affection and preference for his wife.

Never indulge in enthusiastic encomiums of other women in presence of your wife. She does not love you the better for it; it may wound her pride—for women are peculiarly sensitive on this subject. How much to be condemned is that husband who prefers other society to that of his wife and family, rambling from place to place, leaving home for the purpose of passing away his time? Does not a faithful and affectionate wife feel mortified and lonely under such an imprudent and improper course as this? Habit, and a want of reflection in such matters, have, in many instances, destroyed the happiness of families, and induced the wife, by neglect, to seek and form other associations. Seek, then, in the bosom of your family, in the society of your dear children, the purest happiness the world can bestow.

There are men who will sit an entire day without saying one word of affection to their companion. This is wrong. You should converse freely, be cheerful, gay, and good-humored with those who look to you for happiness and example. And when abroad, do not neglect or avoid your wife, or speak with coldness to her. Few women are insensible to tender treatment; a word, a look, has, at times, produced upon her offspring feelings of sadness and melancholy. The austerity of a look, or distance of behavior, will sometimes, through the mind of the mother at a certain period, have a most won-

# MUSCLES.

## A — Figure showing the muscles of the human body.




1. The frontal muscle (for moving the skin of the forehead.)
2 and 3. Temporal muscles for elevating the lower jaw.
4. Muscles for closing the eye-lids.
5. Muscle for closing the mouth.
6. The cervical muscle.
7. Muscles of the larynx and the hyoid bone.
8. Muscle for producing the nodding movements of the head on the atlas.
9. The great thoracic muscle.
10. The small thoracic muscle.
11. The collar-bone.
12. Muscle for widening the cavity of the chest.
13. External oblique abdominal muscle.
14. Straight abdominal muscle.
15. Internal oblique abdominal muscle (for retaining the abdominal cavity).
16. The deltoid muscle (for elevating the arm).
17. The biceps muscle with long and short head for bending the forearm.
18. The triceps muscle for extending the forearm. The inner head of this muscle is visible.
19. Round muscle for rotation inwards.
20. Long muscle for rotation outwards.
21. Internal muscle of the radius.
22. Muscle for bending the wrist, descending from the elbow-joint.
23. Muscle for bending the fingers.
24. The ligament of the wrist-joint.
25. Adductor muscle for drawing the thumb back to the index.
26. Tegumentary folds of the palm.
27. Extensor muscle of the wrist.
28. Tendons of muscles for extending the index.
29. Tendons of muscles for extending the other fingers.
30. Muscle for adducting the thighs.
31. The sartorius muscle.
32. Straight crural muscle.
33. Tendon of the knee-pan.
34. Internal great crural muscle.
35. External great crural muscle.
36. Anterior tibial muscle.
37. Tendinous parts of the crural muscles.
38. Muscle for extending the great toe.
39. Muscles for extending the other toes.
40. Muscles for lifting the foot and for pushing it forwards.
41. The calf-muscle.
42. The soleus muscle.

derful effect. A woman's heart is peculiarly formed for tenderness, and every kind word and endearment from the man she loves is flattering and soothing to her feelings.

A husband, whenever he travels, should always endeavor to write frequently, and his letters should be warm and affectionate. On his return home he should always endeavor to bring some little present to his wife, particularly if she is in a delicate situation. For, in plain language, if you wish an affectionate and devoted child, remember this important instruction: keep her mind calm and free from any melancholy feeling. And remember, in pecuniary matters, do not be penurious and close, or too particular with your wife, for she has an equal right with yourself to all your worldly possessions. Besides, a woman has innumerable trifling demands and many little wants which it is not necessary for man to be informed of, and which, even if he put himself to the trouble of investigating, he would not understand.

How great, then, is the responsibility of the husband, to whom Providence has delegated influence and power over such a nature as this? What will his condemnation be who has substituted for so glorious a fabric, a ruin? What should be the penalty for the abuse of so very precious a trust. We shrink from its consideration; but, on the other hand, we turn with renewed satisfaction to the happy consequences of its faithful fulfillment, which we attempted to portray in the commencement of this important subject.

Our readers may ask, what has this subject to do with medicine? I answer, the connection is plain. Remember the bark of matrimony is launched on the uncertain ocean of experiment, amid kind wishes and rejoicings. But on that precarious sea are many storms, and even the calm has its perils. It is only when the bark has weathered these and landed in the haven of domestic peace, that we can pronounce the voyage prosperous, and congratulate the adventurer on his or her merited and enviable reward.

Now, in conclusion, let me again impress most deeply on your mind the important truth, that on the serenity, affection, and cheerfulness of your wife's disposition during her pregnancy, and the peculiar state of mind of both parties during conception, will greatly depend the disposition and peculiarities of the offspring. In relation to this matter, I have had sufficient experience to convince me that mental, as well as physical, organization greatly depends on a vigorous, well-balanced mind, at a certain time, and this is the reason that so many persons in life are so strangely constituted; and let it be remembered that every deviation from the direct path of prudence and foresight in these matters, seriously, if not directly, abridges the chances of a

healthy child, possessing sound physical strength, and well-balanced mental powers.

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## THE PLEASURES AND PAINS OF MEMORY.

THE pleasures and pains of memory are so intimately united and blended, that while man enjoys one, he suffers also a degree of the other; hence it has been said that "the memory of joys that are past is sweet and mournful to the soul."

Youth is the season of most happiness in life, if that can be termed the greatest happiness which is mingled with the least alloy.

Man, who possesses a sensibility, in some cases increased from early childhood, is capable of experiencing the most exquisite pleasure; and that sensibility also exposes him to feel misery armed with its greatest and most poignant sting; but youth, which is marked with only a small measure of this nice perception, mingles with the scenes around and adapts itself to the ever varying prospect; and if care should at any time seize hold of his employments, its influence on the affections is transient. Hence, it appears, that although man enjoys pleasure in a greater degree than youth, he is also "tremblingly alive" to the impressions of pain, which often may overbalance the sensations of happiness.

It would seem, perhaps, that the agreeable feelings attendant on youth, might be properly classed under the general name of contentment; but this is usually considered to be merely a calm state of mind; whereas, youth really exults, a much higher and livelier emotion than mere tranquillity.

Man, then, experiences greater pleasure, but suffers also a greater degree of pain. If, however, he patiently bears his disappointment, the sting of misery will become less acute and permanent in its effects, and consequently more happiness will attach to his situation. Let man, therefore, be contented with his lot; although pain be mingled in his pursuits and his delights, yet exquisite pleasure invites him forward

And what being is there who would not rather seize a higher degree of enjoyment through the medium of anguish, than suffer a torpid existence, marked only by the littleness and weariness of inactivity, and void of the ardent glow of happiness, and the fervor of a luxuriant and chaste imagination? Nay, is not this peculiarly appropriated to the state of man, by the dictates of unerring wisdom? Is he not doomed to experience the *pangs* of death? and would such a doom be

consistent with the favorite attribute of the *Deity*, Mercy if no alleviation of distress should be afforded to cheer the gloom of despondency? *That balm is given.* Dissolution of his corporeal frame is only the medium through which inconceivable happiness is brought to his view and presented for his acceptance.

When we trace, with the retrospective eye, the scenes of the past, memory adds new colors to events, which, at the time, did not strike the mind with so much force and brilliancy. Fancy also lends her aid, and a thousand graces rise into form by her power. We tread with reverential awe the ground which, hallowed by affection's eye, contains the ashes of our fathers; or the spot where once was a structure consecrated to devotion; and while imagination is busy in gilding the transactions which memory, or the faithful historic page presents to her notice, the mind is expanded with emotions, and rises superior to the sphere in which it is placed; the fervent glow of devotion enkindles within the bosom, while all the tender sensibilities of our nature fan the flame. These sensations not only soften the soul with a humility honorable to the human character, but animate it to form, and strengthen it to fulfill resolutions, excited by the contemplation of the worth and virtues of a long line of ancestry, and a noble desire of imitating their performances. The man, over whom many rolling seasons have passed, and whose cheek successive dreary winters have furrowed, is able to recall each scene to his mental eye which is endeared to him by tender remembrances. In viewing the ruins of a sacred temple, he sees before him the venerable pastor again bending from the pulpit, and feels again the impressions which he experienced long ago, while the truths that spoke peace, dropped from the pastor's lips, like the refreshing rains of heaven on the parched plant, and heavenly wisdom beamed from his countenance! Again are the events of his early years brought by an association of ideas to his attention. He contemplates them with pleasure, but the sweet delusion quickly vanishes, the vivid colors disappear, and he awakes as from a dream. All the traits of one's character have arisen from minutiæ, which, gradually enlarging and receiving new additions, have formed the *whole*, as the small stream, increased by tributary rills, forms the majestic river, and finally the ocean, on whose bosom commerce expands her wings and wafts her stores to the widely separated nations of the earth! Let any person endeavor to retrace, by the aid of a retentive memory, the scenes of his youth, and occasions for the indulgence of pleasure and wonder will present themselves with great clearness and rapidity. He will recollect circumstances which at the time were unheeded, but which his present experience proves to have been decisive of his subsequent career, preg-

nant with misery, or productive of happiness. From *these retrospects* arise many of the greatest pleasures we enjoy, but pain as often attends them. The happiness that we experience through life, mostly originates and exists in anticipation.

> "Hope springs eternal in the human breast;
> Man never *is*, but *always to* BE blest!"

Hence, when we observe the destruction of the evanescent dream of an indulged and heated imagination, by means which sad, and oftentimes *fatal* experience affords, then we *regret* that in the moments when the brilliancy of the morning of youth irradiated our minds, and cheered us with favorable prospects, we yielded ourselves up to its control, and heeded not the cause which brought the clouds that now steal over and obscure the noon of manhood, and vail, with deleterious power, those faculties which otherwise would have been bright and vigorous.

Who has not felt the painful memory of early follies? Who has not at times found crowding on his recollection, thoughts, feelings, scenes, perhaps forgotten by all but him, which force themselves involuntarily upon his attention? Who has not reproached himself with the bitterest regret at follies of thought, speech, or act? Time brings no alleviation to these periods of memory; the weaknesses of our youthful days, as well as those of our later life, come equally unbidden to mock our attention, and claim condemnation from our more mature judgment. It is remarkable that those whom the world least accuses, often accuse themselves the most; and that a foolish speech, which, at the time of its utterance, was unobserved as such, shall yet remain fixed in the memory of him who uttered it, with a tenacity which he vainly seeks to have attach to more agreeable subjects of reflection.

If such be the pain, the penalty of thoughtless folly, who shall describe the penalty of real guilt? Make but the offender better, and he is already severely punished. Memory, that treacherous friend, but faithful monitor, recalls the existence of the past to a mind now imbued with finer feelings and sterner notions of justice, than when it enacted the deeds thus punished by recollection.

If additional knowledge be given us, the consequences of many of our actions appear in a greatly altered light. We become acquainted with many evils they have produced, which, although quite unintentional on our part, are yet sources of painful regret. But this unavailing regret is mixed with another feeling far more distressing. We reproach ourselves with not having sufficiently employed the faculties we possessed in acquiring knowledge, which, if we had attained,

would have prevented us from committing acts we now discover to have been injurious to those we best loved.

I hope it will be written on the tablets of your hearts, in characters not to be effaced by ambition, avarice, or pleasure, that sure and certain happiness is, for the moment, to be found in the consciousness of one's own rectitude. All peace and heartfelt joy is the reward of virtue; and there is no applause in this world worth having, unless it is crowned with our own.

Happiness is pursued and sought by all who inhabit the earth, yet how few attain it! Happiness, like a deceitful phantom, seems to lure us on by devious ways through life's short journey, and at last vanishes from our grasp amid the mists that cloud the portals of death. Beyond those clouds is the home of true happiness, and *there*, not on this earth, can it be enjoyed.

At almost every period of human life, worldly happiness is sought under a different form. Gay, joyous youth strives to secure happiness in the train of pleasure, and when riper years show the vanity of such a pursuit, the spirit seeks for peace in other things. Perhaps wealth and luxury are thought to certainly result in happiness, and when these are found but empty bitterness, the soul may in despair exclaim, "Alas! happiness is but a name!"

It may be sought in science, and when earthly wisdom and knowledge have by long study been obtained, it may be but to show the weary student the little value of terrestrial good. Happy are they, who, with wisdom from above, are instructed how to live so as to secure partial happiness here in this life, and full and perfect joy in the life which is to come. May all be so taught, and prepared to enjoy the happiness of Heaven. It is religion alone that can soothe and comfort us amid the storms and trials of life, and remind us of a perpetual summer where the bright sun never retires behind a cloud, where pleasures will last for evermore, and every tear shall be wiped away.

## THE DREAD OF DEATH.

It is estimated that since the appearance of the cholera at Jessore, in British India, in 1817, not less than eighteen millions of the human family have fallen victims to it in India, Asia, Europe and America, out of which one million have, no doubt, died from the effects of fear. This fact must be apparent to any one, that hundreds die yearly from the effects of the dread of death, and this is the reason why physicians endeavor to restore confidence to their patients. The influence of hope is the great power which, in nine cases out of ten, helps to work the cure in every disease. When the curative powers of nature cease, medicine is at an end. It is not sinful to dread death. The Redeemer dreaded it. His human nature, though perfectly holy, shrank back from the agonies of dying. The fear of death, therefore, in itself is not sinful. Christians are often troubled because they have not the calmness in the prospect of death which they expected, and because their nature shrinks back from the dying pangs, they suppose that such feelings are inconsistent with religion, and that they who have them can not be true Christians. But they forget their Redeemer and his sorrow; they forget the earnestness with which he plead that the cup might be removed. Death is in itself fearful, and it is a part of our nature to dread it, and even in the best of minds, sometimes, the fear of it is not wholly taken away until the hour comes and God gives them dying grace.

There are, probably, two reasons why God made death so fearful to man. One is to impress him with the importance of being prepared for it. Birth is to him the entrance to an endless being, and it is an object of God to keep the attention fixed on death, as a most momentous and solemn event. The animals have no immortal nature, no conscience, no responsibility, and no need of making preparations for death; hence, except in a very slight degree, they seem to have no dread of dying. But not so with man. He has an undying soul He is only a sojourner here. It is necessary that he should prepare for death and for the world beyond; hence, by all the fear of the dying pang, and by all the horrors of the grave, God would fix the attention of man on his own death as a most momentous event, and lead him to seek the hope of immortality, which alone can lay the foundation for any proper removal of the fear of dying.

The other reason is to deter man from taking his own life. To keep him from committing this crime, he is so made that he starts back from death. He fears it; it is to him an object of the deepest dread; and ever when pressed down by calamity and sadness, as a

general law, he "had rather bear the ills he has, than fly to others he knows not of." Man is the only creature in reference to whom this danger exists. I know of no one of the brute creation, unless it be the scorpion, that will take its own life. Brutes may have no dread of dying. But we know how it is with man—weary of life, goaded by a guilty conscience, disappointed and heart-broken, he is often under strong temptations to commit the dreadful crime of self-murder, and to rush uncalled to the bar of God. As one of the means of determent, God has so made us that we fear to die, and thousands are kept from this enormous crime by this fear, when nothing else would save them. It is fortunate, therefore, for the world, that man is afraid to die. In every pang of the dying struggle—in every thing about death that makes us turn pale and tremble at its approach—there is, in some way, the manifestation of goodness to mankind. Then how uncertain is human life! There is but a breath of air and a beat of the heart betwixt this world and the next. In the brief interval of painful and awful suspense, while we feel that death is present with us, we are powerless and he all-powerful. The last faint pulsation here is but the prelude of endless life hereafter; in the midst of the stunning calamity about to befall us, we feel that earth has no compensating good to mitigate the severity of our loss; but, blessed be God, there is no grief without some beneficent provision to soften its intenseness. When the good, and the lovely, and those on whom the heart has rested with idolizing fondness, die, the memory of their good deeds, like the moonbeams on the stormy sea, lights up our darkened hearts, and lends to the surrounding gloom a beauty so sad, so sweet, that we would not, if we could, dispel the darkness that environs them. It is, then, that death comes to us in its most welcome form. He borrows the garb of beautiful and gentle sleep, lays down his iron scepter, and his cold hand falls softly on the weary heart, now ceasing to throb, now about to rest from its long, and toilsome, and palpitating efforts, to enter into that glorious home, "to go no more out forever." For the Christian, death has no real terrors; it sets the imprisoned spirit free, closing a toilsome career on earth, and returning the soul to its original and glorious house, to dwell in the presence of its God forever. Not to become familiar with death, is to endure much unnecessary fear, and add to the myriads of the other imaginary woes of human life.

The idea of the intense suffering preceding dissolution is, and has been so general, that the term agony has been applied to it in many languages. In its origin, the word means nothing more than a violent contest, or strife, but it has been extended so as to embrace the pangs

of death, and any violent pains. The agony of death, however physiologically speaking, instead of being a state of corporeal turmoil and anguish, is one of insensibility. The hurried and labored breathing, the peculiar sound of respiration, and the upturned eyeballs, instead of being evidences of suffering, are now admitted to be signs of the brain having lost all, or almost all, sensibility to impressions. While the brain is possessed of consciousness, the eye is directed as the will commands, by the appropriate voluntary muscles of the organ; but as soon as consciousness is lost, and the will no longer acts, the eyeball is drawn up involuntarily under the upper eyelid.

All the indications of mortal strife are such in appearance only. Even the convulsive agitations, occasionally perceived, are of the nature of epileptic spasms, which we know to be produced in total insensibility and to afford no real evidence of corporeal suffering. An easy death (medically called euthanasia) is what all desire, and fortunately, whatever have been the previous pangs, the closing scene in most ailments is generally of this character. In the beautiful mythology of the ancients, Death was the daughter of Night and the sister of Sleep.

We think that most persons have been led to regard dying as a much more painful change than it generally is, from the severe struggles at the time of dissolution; but we may remark, from experience and a thorough investigation on this subject, that struggles are very far from being invariable signs of distress. Muscular action and consciousness are two distinct things, often existing separately; and we have abundant reason to believe that, in a great proportion of cases, those struggles of a dying man, which are so distressing to behold, are as entirely independent of consciousness as the struggles of a recently decapitated fowl.

A second reason why men are led to regard dying as a very painful change is, because they often endure great pain without dying, and, forgetting that like causes produce like effects only under similar circumstances, they infer that life can not be destroyed without still greater pain. But the pains of death are much less than most persons have been led to believe, and we doubt not that many persons who live to adult age, undergo tenfold more misery than they would, did they entertain correct views concerning the change. In all cases of dying, the individual suffers no pain after the sensibility of his nervous system is destroyed, which is often without much, and sometimes without any, previous pain.

Those who are struck dead by a stroke of lightning, those who are decapitated with one blow of the ax, and those who are instantly

destroyed by crushing, probably experience no pain at all in passing from a state of life to a dead state. One moment's expectation of being thus destroyed far exceeds in misery the pain during the act.

Those who faint on having a little blood taken from the arm, or on any other occasion, have already endured all the physical misery they ever would, did they not again revive.

Those who die of fevers, and most other diseases, suffer the greates pain, as a general thing, hours, or even days, before they expire. The sensibility of the nervous system becomes gradually diminished; their pain becomes less and less acute under the same existing cause, and at the moment when their friends think them in the greatest distress, they are more at ease than they have been for many days previous. Their disease, as far as respects their feelings, begins to act upon them like an opiate. Indeed many are already dead, for some length of time, before their friends are aware of it.

How short and uncertain is life, and what a woeful miscalculation to confine our estimate of felicity to what the present world can impart, whose highest hopes and greatest comforts are but so many flickering rays of future bliss, reflected here for the temporary consolation of the benighted wanderer, like a sunbeam shining through the crack of a dark and loathsome cell to gladden the disconsolate heart of its prisoner, but these when reunited to the great sun of our existence, from whence they proceed, shall finally become the inalienable inheritance of all rational creatures, who seek the attainment of the object for which they were created—and that is, to love the Author of all loveliness, and to observe His most holy ordinances. He made us for Himself; nothing less can content the soul of man, until, exulting in the unfathomable ocean of the Divinity, he can securely repose upon the bosom of his Creator.

How blind and perverse is man's nature! He busies himself with the fleeting vanities of this vain world; seeks eagerly after the idle bubble, reputation; directs the whole energies of his mind to the accomplishment, at best, of some trifling object; hastens to the field to reap glory over the mangled carcasses of his fellow creatures; scales the political ladder, to move and control masses by the force of his puny intellect; embarks on the most perilous voyages, to visit the most distant and unhealthy climes, to accumulate the dirty dross of the world; and, in the midst of his petty schemes and speculations, the angel of death summons him to appear before that dread tribunal, where he will be judged according to the acts done here in the body. Children of tender years will follow their parents, and the domestic circle will be fearfully broken. The husband

will follow the wife, the light and joy of the desolate home, and the wife the husband, on whose strong arm she had hoped to lean through all her days. The young, sinking under the slow torture of wasting disease, will flee away and be at rest. The aged, after years of labor and sorrow, will depart to their last resting-place. The pale marble will rise in the quiet cemetery of the dead, telling us sometimes what they were, but still more often what they ought to have been.

Oh, the grave! the grave! burying every error, covering every defect, it extinguishes every resentment. From its peaceful bosom springs none but fond regrets and kindly recollections. Who can look down upon the grave, even of an enemy, and not feel a compunctious throb that ever he should have warred with the poor handful of earth that lies moldering beneath him? But the grave of those we love—what a place for meditation! Then it is we call up in long review the whole history of virtue and gentleness, and the thousand endearments lavished upon us, almost unheeded, in the daily intercourse of intimacy; then it is we dwell upon the tenderness, the solemn and awful tenderness of the parting scene, the bed of death, with all its stifled grief, its noiseless attendants, its mute, watchful assiduities, the last testimonies of expiring love. Ay, go to the grave of buried love and meditate! There settle the accounts with thy conscience, of every past endearment, unregarded, of that departed being who never, never can return to be soothed by contrition. If thou art a child, and hast ever added a sorrow to the soul, or a slight to the heart of thy parent; if thou art a husband, and hast ever caused the fond bosom that ventured its whole happiness in thy arms, to doubt one moment thy kindness or thy truth; if thou art a friend, and hast ever wronged in thought, word, or deed, the spirit that earnestly confided in thee; if thou art a lover, and hast ever given one unmerited pang to the true heart that loved thee, then will thy conscience upbraid thee and cause the bitterest tears of sorrow and regret to pay tribute to their memories.

The love that survives the tomb is one of the noblest attributes of the soul. If it has its woes, it has likewise its delights; and when the overwhelming burst of grief is calmed into the gentle tear of recollection, then our sudden anguish and convulsive agony over the present ruins of those we most loved, may soften away into pensive meditations on all that they were in the days of their loveliness.

Who would root such a sorrow from the heart, though it may sometimes throw a passing cloud over the bright hour of gaiety, or spread a deeper sadness over the hour of gloom; yea, who would exchange it even for the song of pleasure or the burst of revelry? No, there is

a voice from the tomb sweeter than song; there is a remembrance of the dead to which we turn even from the charms of the living, and hope tells us we shall be united to them again in that blessed realm. Behold in our blessed Redeemer an example of meek submission. From his sympathy with the deranged and dying race, he agonized beneath the burden of human woe, in affinity with the unjust; and still thou didst hear him say, "Not as I will, but as thou wilt; not my will, but thine, O God, be done."

It is needful that man should have grace vouchsafed, and, by the power of love, become united to heavenly spheres, and thus be exalted from degradation to mansions of righteousness and peace, prepared in heaven for the ransomed of the Lord.

Predictions of death, whether supposed to be supernatural or originating from human authority, have often, in consequence of the distressing operation of fear, been punctually fulfilled. The fact is well attested of the licentious Lord Littleton, that he expired at the very stroke of the clock, which, in a dream or supposed vision, he had been forewarned would be the signal of his departure.

Many of the deaths which take place upon a field of battle, without the individuals being wounded in the slightest manner—all of which were formerly attributed to the wind of a flying ball—are, no doubt, produced from the effects of intense fear.

Tell a timorous man, even though brought up amid all the light of civilization, that he will die, and if he has been in the habit of looking up with reverence to your opinion, in all probability he will sink into his grave—though otherwise his life might have been prolonged. Pronounce the sentence with sufficient decision and solemnity, and, under certain circumstances, it will execute itself.

If, during a serious illness, a patient hears accidentally of the death of some old acquaintance, especially if it be a person of nearly the same age as himself, or affected with a similar complaint, it will, not so much from sorrow for the loss, as by exciting or aggravating his apprehensions for his own fate, produce an unfavorable effect upon the termination of his malady. Even in ordinary health, the shock we feel at the departure of a friend, still in the prime of life, may often arise, in part at least, from the unwelcome hint which it gives us of our own mortality.

Another circumstance, which has often accelerated death, is the preparation which we make for it, when sickness has approached us, in the disposal of our worldly property. Many a sick man has died after making his will. After having fixed his signature to his last testament, viewing it as a kind of prelude to the funeral ceremonies, the spirits and strength of the invalid will often be found irretrieva-

bly to sink; no mental stimulus will subsequently arouse him; no medicine afford mitigation to his complaint. This fact constitutes a powerful argument in favor of performing this duty to survivors, while yet in a state of health and vigor, when the task will have a better chance of being judiciously executed, and at the same time without any risk of disturbance or injury to the body or to the mind.

The grave is the ordeal of true affection. It is there the divine passion of the soul manifests its superiority to the instinctive impulse of mere animal attachment. The latter must be continually refreshed and kept alive by the presence of its object; but the love that is seated in the soul can live on long remembrance. The mere inclinations of sense languish and decline with the charms which excited them, and turn with shuddering and disgust from the dark precincts of the tomb; but it is thence that truly spiritual affection rises purified from every sensual desire, and returns, like a holy flame, to illume and sanctify the heart of the survivor.

Then weave the chaplets of flowers, and strew the beauties of nature about the grave; console thy broken spirit, if thou canst, with these tender yet futile tributes of regret; take warning by the bitterness of this thy profound affliction over the dead, and henceforth be more faithful and affectionate in the discharge of thy duties to the living.

The sorrow for the dead is the only sorrow from which we refuse to be divorced. Every other wound we seek to heal—every other affection to forget; but this wound we consider it a duty to keep open—this affection we cherish and brood over in solitude. Where is the mother that would willingly forget the infant that perished like a blossom from her arms, though every recollection is a pang? Where is the child who would willingly forget the most tender of parents, though to remember be but to lament? Who, even in the hour of agony, would forget the friend over whom he mourns? Who, even when the tomb is closing over the remains of her whom he most loved, when he feels his heart, as it were, crushed in the closing of its portal, would accept any consolation that might be bought by forgetfulness?

God would never have let us long for friends with such a strong and holy love, if they were not waiting for us. That God of love, from whom every divine mercy flows, would never have created in us those strong, clinging affections; of His own free grace, given us years of life together, every day making them nearer and dearer, till heart and soul are wrapped up in their existence, and then rend them from us forever, leaving us with torn and bleeding hearts and agonizing memories of joys forever past! Oh, no! "God is love;" "He pitieth us even as a father pitieth his children."

## TO YOUNG MEN.

WHAT will my reader give to know how to get rich? Now, I will not vouch that the following rules will enable every person who may read them to acquire wealth, but this I will answer for, that if ever a man does grow rich by honest means, and retains his wealth for any length of time, he must practice upon the principles laid down in the following essay; and I strongly commend them to the attention of every *young* man, at least, as affording the true secret of success in attaining wealth. A single perusal of such an essay, at an impressible moment, has sometimes a very wonderful effect upon the disposition and character of youth.

Fortune, they say, is a fickle dame—full of her freaks and caprices—who blindly distributes her favors without the slightest discrimination. So inconstant, so wavering is she represented, that her most faithful votaries can place no reliance on her promises. Disappointment, they tell us, is the lot of those who make offerings at her shrine. Now, all this is a vile slander upon the dear blind lady.

Although wealth often appears the result of mere accident, or a fortunate occurrence of favorable circumstances, without any exertion of skill or foresight, yet every man of sound health and unimpaired mind may become wealthy, if he takes the proper steps.

Foremost in the list of requisites, are honesty and strict integrity in every transaction of life. Let a man have the reputation of being fair and upright in his dealings, and he will possess the confidence of all his acquaintances. Without these qualities, every other merit will prove unavailing. Ask concerning a man, "Is he active and capable?" Yes. "Industrious, temperate, and regular in his habits?" "Oh! yes." "Is he honest? is he trustworthy?" "Why, as to that, I am sorry to say, he is not to be trusted; he wants watching; he is a little tricky, and will take an undue advantage, if he can." "Then I will have nothing to do with him," will be the invariable reply. Why, then, is honesty the best policy? Because, without it, you will get a bad name, and every body will shun you.

A character for knavery will prove an insurmountable obstacle to success in almost every undertaking. It will be found that the straight line is, in business, as in geometry, the shortest. In a word, it is almost impossible for a dishonest man to acquire wealth by a regular process of business, because he is shunned as a depredator upon society.

Needy men are apt to deviate from the rule of integrity, under the plea that "necessity knows no law;" they might as well add that it

knows no shame. The course is suicidal, and by destroying all confi dence, ever keeps them immured in poverty, although they may pos sess every other quality of success in the world.

Punctuality, which is said to be the soul of business, is another important element of money-getting. The man known to be scrupulously exact in the fulfillment of his engagements, gains the confidence of all, and may command all the means he can use to advantage whereas, a man careless and regardless of his promises in money mat ters, will have every purse closed against him. Therefore be prompt in your payments.

Next, let us consider the advantages of a cautious circumspection in our intercourse with the world. Slowness of belief and a proper distrust are essential to success. The credulous and confiding are ever the dupes of knaves and impostors. Ask those who have lost their property how it happened, and you will find, in most cases, it is due to misplaced confidence. One has lost by indorsing; another by crediting; another by false representations; all of which a little more foresight and a little more distrust would have prevented. Judge of men by what they do, not by what they say. Believe in works rather than words. Observe all their movements. Ascertain their motives and their ends. Notice what they say and do in their unguarded moments, when under the influence of excitement. The passions have been compared to tortures, which force men to reveal their secrets. Before trusting a man, before putting it in his power to cause you a loss, possess yourself of every available information relative to him. Learn his history, his habits, inclinations, and propensities; his reputation for honesty, industry, frugality, and punctuality; his prospects, resources, supports, advantages, and disadvantages; his intentions and motives of action; who are his friends and enemies, and what are his good or bad qualities. You may learn a man's good qualities and advantages from his friends—his bad qualities and dis advantages from his enemies. Make due allowance for exaggeration in both. Finally, examine carefully before engaging in any thing, and act with energy afterward.

Order and system in the management of business must not be neglected. Nothing contributes more to dispatch. Have a place for every thing, and every thing in its place; a time for every thing, and every thing in its time. Do first what presses most, and having determined what is to be done, and how it is to be done, lose no time in doing it. Without this method all is hurry and confusion, little or nothing is accomplished, and business is attended to with neither pleasure nor profit.

Remember in life, honey catches flies, vinegar never. A polite,

affable deportment is recommended. Agreeable manners contribute powerfully to a man's success. Take two men possessing equal advantages in every other respect, but let one be gentlemanly, kind, obliging, and conciliating in his manners; the other harsh, rude, and disobliging, and the one will become rich where the other will starve.

We will now consider a very important principle in the business of money-getting, namely: *Industry*—persevering, indefatigable attentio to business. Persevering diligence is the philosopher's stone whicl turns every thing to gold. Constant, regular, habitual, and systematic application to business must, in time, if properly directed, produce great results. It must lead to wealth, with the same certainty that poverty follows in the train of idleness, inattention, vice, drinking, and gambling. It has been truly remarked, that he who follows these things instead of his business, will soon have no business to follow.

The art of money-saving is an important part of money-getting. Without frugality, no one can become rich; with it, few would be poor. Those who consume as fast as they produce, are on the road to ruin. As most of the poverty we meet with grows out of idleness and extravagance, so most large fortunes have been the result of habitual industry and frugality. The practice of economy is as necessary in the expenditure of time as of money. They say, that if "we take care of the pence, the pounds will take care of themselves. So, if we take care of the minutes, the days will take care of themselves.

The acquisition of wealth demands as much self-denial, and as many sacrifices of present gratification, as the practice of virtue itself. Vice and poverty proceed, in some degree, from the same sources, namely: the disposition to sacrifice the future to the present; the inability to forego a small present pleasure for great future advantages. Men fail to acquire fortune in this world as well as happiness in the world to come, because they are unwilling to deny themselves momentary enjoyments for the sake of future permanent happiness.

Every large city is filled with persons, who, in order to support the appearance of wealth, constantly live beyond their income, and make up the deficiency by contracting debts which are never paid. Others there are, the mere drones in society, who pass their days in idleness, and subsist by pirating on the hives of the industrious. Many who run a short-lived career of splendid beggary, could they only be persuaded to adopt a system of rigid economy for a few years, might pass the remainder of their days in affluence, and, if not in affluence, have a sufficiency provided for the winter of old age, or for their families, should they be called off by death. But no! They must keep up *appearances*, they must live like other folks. Their debts accumulate;

their credit fails; they are harassed by duns, and besieged by constables and sheriffs. In this extremity they often submit to a shameful dependence, or engage in criminal practices, which entail hopeless wretchedness and infamy on themselves and families.

Adhere to the business in which you are regularly employed. Let speculators make their thousands in a year or a day; mind your regular avocation; never turn to the right hand or to the left. If you are a merchant, a professional man, or a mechanic, never buy lots or stocks, unless you have surplus money which you wish to invest. Your own business you understand as well as other men, but other people's you do not understand. Let your business be some one that is useful to the community. All such occupations possess the elements of profit in themselves.

People seldom learn economy till they have but little left to exercise it on. Be saving; not stingy, nor prodigal. We never knew a prudent, economical, saving man, to come to want; but we have known hundreds of individuals born to wealth, who, by extravagance, have died in penury and misery.

Youth is ever impatient. How many fair prospects, at the outset of life, have been spoiled or blasted by the anxious and impatient mind! Dissatisfied with the, at first, toilsome and rugged track, we seek to find some short cut to fortune, and only become conscious of our error when foundering among the difficulties, embarrassments, and perplexities of a business plunged into imprudently and thoughtlessly, to wander back and again set forth, far behind those we so ardently hoped to outstrip, in the pursuit of wealth and happiness. How often are the minds of the young dazzled and blinded, and led on to ruin by the splendid fallacies of some plausible visionary, who will tell you of the stupendous fortunes made in a day, "of a tide in the affairs of men!" Alas! how few float to fortune on the flood of that tide—one in a thousand!

Let it be deeply impressed on your mind how perilous is falsehood, when once concealment or deceit has been practiced in matters where all should be fair and open as the day. Confidence can never be restored any more than you can restore the white bloom to the grape or plum which you have pressed in your hand. How true is this, and what a neglected truth!

How much misery would have been avoided in the history of many lives, had truth and sincerity been controlling habits, instead of prevarication and deceit? If once you deceive, it is almost impossible to restore confidence. How many young men's hopes have been crushed by one false step?

# ON THE PRESERVATION OF HEALTH.

## OF HEALTH.

THE four ordinary secrets of health are early rising, exercise, personal cleanliness, produced by using cold bath every morning, and rising from the table with the stomach unoppressed.

A healthy mind, in a healthy body, was esteemed by the ancients the greatest blessing. This truth being proclaimed so long ago, is it not strange that we have not better learned before this time to secure, by pains and care, a healthy body? Perhaps you are a little skeptical. You do not believe that the powers of your mind, the evenness of your temper, and the kindness of your disposition, depend in any sense on the state of your body. I appeal, then, to your own observation and experience. Providence has put into your own hands the means of health. It was too precious a boon to be trusted to any one's keeping but your own, and remember that the gift involves a solemn responsibility! Health will be counted among the talents, for the use of which you are to answer to God. It is then surely one of your greatest blessings, and one of your first duties is to study the laws that govern it—this is *physical education.* It is a solemn truth, and one, my young friends, that should be familiar to you, that, *for the most part*, we bring the diseases we suffer upon ourselves. If not the effect of our own sin or imprudence, they are traceable to the neglect or ignorance of the guardians of our youth, or possibly were entailed on us by our parents. They, perhaps, received them from their parents, and they and we suffer them as a penalty for the violation of His law.

Take, for example, a young girl, bred delicately in town, shut up in a nursery in her childhood, in a boarding-school through her youth, never accustomed either to air or exercise, two things which the law of God makes essential to health. She marries; her strength is inad equate to the demands upon it; her beauty fades early; she languishes through the hard offices of giving birth to children, suckling, and watching over them, and dies early; and her acquaintances lament ingly exclaim, "What a strange Providence, that a mother should be taken in the midst of life from her children!" Was it Providence? No! Providence had assigned her threescore years and ten—a term

long enough to rear her children, and see her children's children. But she did not obey the laws on which life depends, and of course she lost it.

A father, too, is cut off in the midst of his days. He is a useful and distinguished citizen, and eminent in his profession. A general buzz rises on every side, of "What a striking Providence!" This man had been in the habit of studying half the night; of passing his days in his office, and in the courts, of eating luxurious dinners, and drinking various liquors. He had every day violated the laws on which health depends. Did Providence cut him off? The evil rarely ends here. The diseases of the father are often transmitted; and a feeble mother rarely leaves behind her vigorous children.

It has been customary in some of our cities for young ladies to walk in thin shoes and delicate stockings in mid-winter. A healthy, blooming young girl, thus dressed in violation of heaven's laws, pays the penalty—a checked perspiration, cold, fever, and death. "What a sad Providence!" exclaim her friends. Was it Providence, or her own, or her parents' folly?

A beautiful young bride goes, night after night, to parties, made in honor of her marriage; she has a slightly sore throat, perhaps, and the weather is inclement, but she must wear her neck and arms bare, for who ever saw a bride in a close evening dress? She is seized with inflammation of the lungs, and dies before her bridal days are over. Why? From a checked circulation, cold, fever, or consumption.

Night after night, we see beautiful girls, and, not unfrequently, women, who ought to have better sense, from vanity go thinly dressed, coming out of a warm room into inclement weather, with neck and arms bare, clothed in a thin muslin or fancy dress. Who can expect any thing else from such a course of conduct, but sore throat, inflammation of the lungs, pleurisy, rheumatism, and a variety of other diseases, which suddenly destroy life, or injure the general health, so as to make life a burden? And now let me urge upon you the importance of these things, for I feel assured, from long experience in these matters, that if we would only study the laws upon which health depends, and strictly follow them, there would be an end to many modern diseases, as well as those entailed from generation to generation; for the great mass of disease is mostly incurred by intemperance in eating or drinking, by neglect of regular exercise, and by our own imprudence. Therefore, if you would have good health, study the laws of nature, and doctors may close their shops, and apothecaries swallow their own drugs for want of customers.

It is a fact, to which every physician will testify, that half the

females, in what are called the better classes, are victims to ill-health. Take the daily life of the wives and daughters of our men of wealth, and see what it is! From morning till night the same round of nothingness, the same comparative absence of physical exercise and mental recreation, the same listless, sluggish, stagnating existence. With plenty of servants to render all manual labor, and frequently even household cares, unnecessary; often, if wives, with no offspring to engage the attention, or if daughters, with no particular object in life to awaken interest, they pass day after day without any physical exercise more invigorating than a stupid walk up and down the street, and with no mental employment more inspiring than the reading of a few indifferent novels, the making idle morning calls, or the spending an evening at a ball, where late hours, thin dresses, excessive dancing and improper food, do more injury than they imagine.

Now, did nature ever intend women, even if rich, to live thus? Is not wealth, when it leads to such habits, a curse rather than a blessing? There is nothing more true than that a certain amount of both mental and manual labor is necessary, in the case of either sex, to the enjoyment of continued health. If a rich man follows no employment, he becomes a drunkard, a gambler, or worse, for he can not do without action, he feels the evil of unemployed energies; yet few appear to consider that females, equally with males, should have something to do, something to interest and occupy their energies. Women who fill a moderate station, in other words are compelled by necessity to work, without having to overwork themselves, almost invariably enjoy good health; and when they do not, their maladies may be traced generally to some constitutional infirmity transmitted from their parents, as consumption, debility, dyspepsia, or other hereditary complaints. Farmers' wives, as a mass, are more healthy than the wives of citizens; and why? Because, first as farmers' daughters, and afterward as their helpmates, they are accustomed to a certain amount of invigorating exercise, which females, born and bred in towns, consider, to use their own words, ungenteel. Yet, the first gain from nature the blooming cheeks, which the latter, too frequently, are compelled to imitate. English women, as a class, are less sickly than American ones—why? Because English girls take daily a certain amount of robust out-of-door exercise, which American mothers and daughters, with their overstrained and false notions, would pronounce unfeminine, but which gives vigor to the frame, health to the blood, and, what is best of all, elasticity to the spirits.

Females should be early taught the important fact, that beauty can

not, in reality, be independent of health, and that the one is absolutely unattainable by any practice inconsistent with the other.

In vain do they hope to improve their skin—to give a "roseate hue" to their cheeks, or to augment the grace and symmetry of their forms, unless they are cautious to preserve the whole frame in health, vigor and activity. Beauty of complexion, and to a certain extent, that of shape also, is nothing more than visible health—a pure mirror of the perfect performance of the internal functions, and of their harmony with the external portions of the system; the certain effects of pure air, cheerfulness, temperance, and of exercise, uninterrupted by any species of unnatural restraint.

In the great work of Dr. Metcalfe, on the subject of caloric, he lays down the proposition that nothing more essentially contributes to health and longevity than a happy and tranquil state of mind, which is to be sought for in a temperate exercise of all the physical, intellectual and moral faculties. "Benevolence, friendship, love, a good conscience, with tender, refined and elevated thoughts, are never-failing sources of health and delight; whereas, pride, envy, jealousy, covetousness, anger, and all the passions, habitually indulged to excess, not only embitter our happiness, and that of all around us, but sap the foundations of health, and shorten the period of existence.

"*What is health?* is a question which may be thought quite superfluous to ask, yet, like some words which we suppose we know the meaning of, because they are familiar, and yet in fact convey no idea to the mind, so it will be found that health, which every one talks of, is, after all, a thing which very few have any correct idea of. I define it to be a condition of mind and body habitually susceptible of agreeable impressions, which, therefore, requires sensibility of the internal senses and of the interior nervous structure; cultivation or discipline of these senses and of the faculties of mind, that we may be furnished with agreeable impressions from all external objects, and equally pleasing consciousness in the exercise of thought upon the subjects thus presented. This, indeed, is an ideal of health which may be the lot of few; but it is proper to have a standard. It does not require as a condition of health great intellectual refinement; but it does require, what all should aim at, and by proper advice and direction may be attained by all, a proper exercise of the functions of mind and body. Harmony of all the faculties, when these are properly disciplined, is the true state of happiness. Disease impairs enjoyment; that is, of a placid or habitual character, or that which is most consistent with long life, but may, by rousing into greater activity certain powers of mind or body, give to them more acute sensibility.

"Another requisite is, that this sensibility of nerves should be nat-

ural and not morbid. A bodily constitution that is 'servile to every skyey influence,' and suffers a shock from even ordinary incidents of life, is devoted to the extremest human misery, and often ends in the unuttered woes of madness."

Every person ought to have physical exercise in the open air, that will occupy two or three hours every day. We work too hard, but it is not labor of the right kind. The excessive toil in the office, in the shop, the store, the counting-room, in the kitchen, the sewing-room, and in the school-room, should be deprecated, and invigorating exercise in the open air encouraged.

*City life, especially in the mercantile classes, oppressed by the cares of business in addition to the claims of society, is also characterized by an unnatural excitement and activity.* The unremitted cares of business, the rage of passions, the fury of politics, the restlessness of ambition, the thirst for gold, the struggles of competition, overtax the physical, intellectual, and moral constitution, and doom it to the depressing influences and an enfeebled state of reaction; and fast wear out human life.

In enumerating the improvements that have taken place in cities, as regards the health of their inhabitants, we must not omit the railroads. Some of my readers may be disposed to ask, in astonishment, what railroads have to do with health? I answer, that the facilities which railroads afford for enjoying the fresh air of the country, have a direct influence upon health of a most beneficial nature. Dr. James Johnson, in a recent number of the *Medico-Chirurgical Review*, has the following remarks on the subject:

"Railroad traveling possesses many peculiarities, as well as some advantages, over the common modes of conveyance. The velocity with which the train moves through the air is very refreshing, even in the hottest weather, where the run is for some miles. The vibratory, or rather oscillatory, motion communicated to the human frame, is very different from the swinging and jolting motions of the stage-coach, and is productive of more salutary effects. It equalizes the circulation, promotes digestion, tranquilizes the nerves (after the open country is gained), and often causes sound sleep during the succeeding night; the exercise of this kind of traveling being unaccompanied by that lassitude, aching, and fatigue, which, in weakly constitutions, prevents the nightly repose. The railroad bids fair to be a powerful remedial agent in many ailments to which metropolitan and civic inhabitants are subject."

The innumerable steamboats plying upon rivers are another comparatively recent means of securing health to metropolitans. The benefits derived from a trip for thirty miles upon a river on a fine summer's day, are very great. The lively bustle, the beautiful scenery, and the swift motion of the vessel through the water, all tend power-

fully to alienate, for a time, the mind of the business-pressed citizen from his daily thoughts; and the refreshing breeze, which is almost always blowing, has a most healthful effect.

Last, but most important, from the health-giving standpoint, of the various modes of traveling, comes the electric motor car. Tracks for these cars bid fair to form an even finer meshed network throughout our country than do the tracks of the steam cars. Of all the modes of travel, yes, even of recreation, a ride on an open electric car, through a beautiful country district, is perhaps most relaxing, exhilarating, pleasing, and beneficial.

It is remarkable that so little attention is paid to the preservation of health, at least while health remains, when only is its preservation possible.

Pleasure-seekers continually commit excesses which shorten life; men ambitious of wealth or fame, task the brain beyond its capacity; persons, otherwise of sense and prudence, indulge in dishes that experience proves to be unsuited to them, or gorge themselves over otherwise healthy food; proper bathing is neglected; people, when fatigued, throw themselves down in a current of air to sleep, though perfectly aware that, in the relaxation that ensues, the draught will give them cold. Slight affections of the throat and lungs are disregarded, until the evil becomes serious, perhaps incurable. Exercise is neglected by persons of sedentary employments. Nervous individuals, instead of avoiding, seek excitements. Farmers inhabiting marshy districts overlook every consideration of prudence, and thus sacrifice themselves to slow agues, or violent fevers. In short, the laws of physical existence are violated in every way, and only when the long series of follies begins to tell on the constitution is attention directed to the subject. Then the sufferer thinks of health; but, alas! too late. The vitality is gone; the victim becomes a sufferer for a few short years, and life is prematurely cut off.

This neglect of the laws of our physical being can not be too much reprehended. Many a man, through ignorance or neglect of these laws, has shortened his life materially, besides leaving impaired constitutions to his children. Persons, indeed, who might have lived to seventy, or even a hundred years, cut themselves off at fifty or sixty; while others, with still more disregard to this matter, wear out their lives at forty, or even earlier. From excesses, carelessness, and improper habits, how many thousands shorten the duration of life! If we would study the laws of the prophet, "the threescore and ten," of the Hebrew time, would be more frequently attained. Half the medicines used in endeavoring to prolong life would be avoided, and all would be familiar with the simple rules for prolonging life. Imprudence would then be comparatively little known. Excesses of body or mind, except among the wicked or reckless, would disappear. A healthy, robust, and happy race would fill our country; the curse of

hereditary disease would almost vanish, and man, as in the primeval Paradise, would stand up in the perfect image of his Maker.

If men and women gave three times as much attention as they now do to ventilation, or, in plain language, breathing fresh air, bathing regularly, and exercise in the open air, and only one-third as much to eating, fashion, and late hours, the number of doctors, dentists, and apothecaries, and the amount of neuralgia, dyspepsia, gout, rheumatism, diseases of the womb, consumption, and many other diseases would be changed in a corresponding ratio; mankind would rapidly present the aspect, not only of a far healthier and thriftier, but a far more beautiful and more virtuous race.

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## EARLY RISING.

Every circumstance contributes to render early rising advisable to those who are in pursuit of health, or those who desire the enjoyment of it. There is no time equal in beauty and freshness to the morning, when nature has just parted with the gloomy mantle which night had flung over her, and stands before us like a young bride, from whose face the vail which covered her loveliness has been withdrawn. The whole material world has a vivifying appearance. The husbandman is up at his labor, the forest leaves sparkle with drops of crystal dew, the flowers raise their rejoicing heads toward the sun, the birds pour forth their anthems of gladness, and the wide face of nature itself seems as if awakened and refreshed by a mighty slumber. All these things, however, are hid from the eyes of the sluggard; nature in her most glorious aspect is to him a sealed book, and while every scene around him is full of beauty, interest, and animation, he alone is passionless and uninspired. Behold him stretched upon his couch of rest. In vain does the cock proclaim that the reign of day has commenced. In vain does the morning light stream fiercely through his window, as if to startle him from his repose. He hears not, he sees not, for blindness and deafness rule over him with desperate sway, and lay a deadening spell upon all his faculties, and when he does at length awake, far on in the day, from the torpor of this benumbing sleep, he is not refreshed. He does not start at once into new life, with joy in his mind and vigor in his frame. On the contrary, he is dead, languid, and stupid, as if half recovered from a paroxysm of drunkenness. He yawns, stretches himself, and stalks into the breakfast room, to partake, without appetite, of his unrefreshing meal, while his eyes are red and his physical system relaxed, and his mental faculties weakened by thus wasting the most precious hours of

his existence in secondary death. There is a freshness, a purity in early morning, which, to the physical and moral frame of man, is restorative and delightful. It is seldom that the rich and fashionable of the world taste its ethereal joys. Its mystical spirit drinks in the perfumed breath of awakened creation, which is almost gifted with supernatural power. Those who would live long and see happy days, with improved health, must habitually become early risers. The difference between rising every morning at six and eight, in the course of forty years, amounts to twenty-nine thousand and two hundred hours; or three years, one hundred and twenty-one days and sixteen hours. The loss of the morning hour is never retrieved. The great utility of bodily exercise in the morning, as a preservative of health, is of the utmost importance. Walking is the most perfect exercise for the human body. Every artery, from the heart to the extremities, propels the blood quicker and more equally in walking than in any other exercise. The blood is drawn from the head and upper parts, where it is most slow and languid, and is circulated with rapidity to every extremity of the system. Almost all the great and laborious men in the world have been early risers. An hour lost in bed in the morning, is far more injurious than the time lost in the evening. Industrious men do not feel the need of as much sleep as idlers. The reason is, they acquire the habit of taking less sleep, and then they are as well off, and better, than those who sleep more. One hour lost in sleep is forever lost, without bestowing any benefit upon the loser.

The man who sleeps away this hour feels dull when he does rise. He has no system, and not having much industry, may well think it dangerous to have many irons in the fire. He lets his iron burn till little is left but the handle.

The world is but little better for such a man while he is in it, and he will be but little thought of when he is out of it. Industry and system are the two great means to accomplish prodigies, both as to health and wealth. Put all the irons into the fire, and then see that none of them burn.

Those who desire to attain to a great age, or to really and truly enjoy life, must maintain habits of temperance, and have free exercise in the open air. Live on plain diet. Be sure you observe cleanliness, by which I mean using freely the bath, cold or warm, according to the season or the constitution of the person. Avoid a bent or crooked position of the body, rise early, and especially cultivate a contented and cheerful frame of mind. The history of many of the ancient philosophers who lived to comparatively a great age, by a simple or abstemious regimen and regular habits of exercise, bathing, etc., affords us a lesson by which we ought to profit much. In nearly every

case of longevity on record, it will be seen that an equanimity of temper, a uniform, calm, regulated exercise of all the animal passions, only to be maintained by placing them under the control of the moral sentiments, and under the direction of the intellectual faculties, was prominently among the causes of longevity. Intensive and extended life, in fact, are incompatible. Any passions or powers of mind or body, that are often and inordinately excited, will soon exhaust their vitality, and, on the contrary, any mental or bodily functions not duly exercised, will be improperly developed.

Our whole lives should be a state of moderate, yet constant, enjoyment. It is in our power so to live as to possess an almost entire immunity from disease, and death ought to be the sequel of old age—a gradual, almost insensible cessation of the functions of life, unattended with pain and suffering, instead of the violent and unnatural termination of existence, from disease, as is now generally the case. Every motion of the human frame helps to construct a fortification against disease, and to render the body more impregnable against its attacks. The man who is obliged to be constantly employed to earn the necessaries of life and support his family, knows not the unhappiness he prays for when he desires wealth and idleness. To be constantly busy is to be always happy. Persons who have suddenly acquired wealth, broken up their active pursuits, and begun to live at their ease, waste away and die in a very short time. Thousands would have been blessings to the world, and added to the common stock of happiness, if they had been content to remain in an humble sphere, and earned every mouthful of food that nourished their bodies. But no! Fashion and wealth took possession of them, and they were completely ruined. They ran away from peace and pleasure, and embraced idleness, dissipation, intemperance, and a lingering death. Ye who are sighing for the pomp and splendor of life, beware! Ye know not what ye wish! How is it possible for you to be happy, while you possess a discontented mind? No situation, however exalted—no wealth, however magnified—no honors, however glorious—can yield you solid enjoyment, while discontent lurks in your bosom. The great secret of health and happiness consists in being reconciled to your lot, and never sighing for the splendor of riches, or the magnificence of fashion or power. Persons who are constantly employed, and go cheerfully to heir daily tasks, are the most happy, and at night sleep with perfect composure: while the rich, the idle, and dissipated, are seldom contented; the springs of life are rusting out, the functions of life perform their duty sluggishly, the health becomes impaired, the constitution gradually sinks, dissipation rapidly wastes the energies of nature, and premature old age is the conse-

quence, or at least general ill-health, and relief through medicine is sought in vain.

Early rising has been often extolled, and extolled in vain; for people think that an hour's additional sleep is very comfortable, and can make very little difference after all. But an hour gained or wasted every day makes a great difference in the length of our lives, which we may see by a very simple calculation. First, we will say that the average of mankind spend sixteen hours of every twenty-four awake and employed, and eight in bed. Now, each year having three hundred and sixty-five days, if a diligent person abstract from sleep one hour daily, he lengthens his year three hundred and sixty-five hours, or twenty-three days of sixteen hours each, the length of a *waking* day, which is what we call a day in these calculations. We will take a period of forty years, and see how it may be decreased or added to by sloth or energy. A person sleeping eight hours a day, has his full average of three hundred and sixty-five days in the year, and may therefore be said to enjoy complete his forty years. Let him take nine hours' sleep, and his year has but three hundred and forty-two days, so that he lives only thirty-seven and one-half years; with ten hours in bed, he has three hundred and nineteen days, and his life is thirty-five years; in like manner, if the sleep is limited to seven hours, our year has three hundred and eighty-eight days, and, instead of forty, we live forty-two and one-half years; and if six hours is our allowance of slumber, we have four hundred and eleven days in the year, and live forty-five years. By this, we see that in forty years, two hours daily occasion either a loss or gain of *five years*. How much might be done in this space! What would we not give at the close of life for another lease of five years? And how bitter the reflection would be at such a time, if we reflected at all, that we have willfully given up this portion of our existence, merely that we might lie a little longer in bed in the morning.

A ride of half a dozen miles before breakfast lends a bloom to the cheek and a sparkle to the eye of beauty, which no cosmetic can supply, to say nothing of the famous appetite that follows in their train.

At least two hours a day should be spent in the open air. When the weather is such as not to permit the delicate to go abroad, the windows should be thrown open, and exercise then taken by walking up and down the apartments of the house. Walking is the most natural and convenient exercise, and, to the healthy and robust, perhaps the best. Riding on horseback, especially to the dyspeptic, and to those who are threatened with consumptive complaints, and to

weakly persons, will be of great service. I have restored hundreds to perfect health by exercise on horseback, by morning and evening rides, when medicine has failed.

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## SLEEP.

NATURE has allotted the darkness of night for repose, and the restoration, by sleep, of the exhausted energies of both body and mind. If study or composition be ardently engaged in toward that period, the increased action of the brain, which always accompanies mental labor, requires a long time to subside, and if the individual be of an irritable habit, or nervous temperament, he will be sleepless for hours, or tormented by unpleasant dreams. By continuing to sit up late at night, occupying the mind too intensely by study or otherwise, one must ultimately produce a state of irritability of the nervous system approaching to insanity. Nothing destroys health so rapidly as the want of refreshing sleep. It is, therefore, of great advantage to engage in studies or labor early in the day, and devote two or three hours preceding bed time, to music, or amusing and pleasant conversation, or any thing which produces a cheerful mind.

Sleep is a necessary law of the animal economy, and is the suspension of animal life. During its continuance, the creature is under the influence of organic life alone. Organic life applies to the functions which sustain and nourish the object; animal life to those which make it a sentient being, which give it thought, feeling, and motion, and bring it into communication with the surrounding world. The digestive organs, the kidneys, the heart, and the lungs, are the apparatus, which carry into effect the organic life of animals. Those which manifest animal life are the brain, the organs of the senses, and the voluntary powers. Sleep is the intermediate state between wakefulness and death—wakefulness being regarded as the active state of all the animal and intellectual functions, and death their total suspension. Complete sleep is a temporary intellectual death, though not an organic one—the heart and lungs performing their offices with their accustomed regularity, under the control of the involuntary muscles. This is the sleep of health, and is full of tranquillity and repose, by which nature recruits the wasted powers, and restores our nervous energies. When this is accomplished, slumber vanishes, languor is succeeded by strength, and all of the faculties, mental and corporeal, are recruited. In this delightful repose man assimilates that state in which Adam sprang from his Creator's hand, fresh, buoyant, and vig

orous, rejoicing as a man ready to run his course; his mind and body prepared for exertion. How different is the sleep of disease? It is short, restless, feverish, and unrefreshing, disturbed by frightful or melancholy dreams; the pulse is agitated, and from nervous excitements there are frequent startings and tremblings of the muscles; nightmare, with its thousand shapes, presses like an incarnation of misery upon the frame; imagination, distempered by its combination with physical disorder, ranges along the gloomy confines of terror, holding communication with demons and the grave, and throwing hideous shadows over human life, from which they awake with palpitating hearts, and in a state of suffocation.

Night is the time for sleep. Darkness and the silence of nature court repose, as the light of the new-born day invites us to activity and labor. In fact, there exists a strange but certain sympathy between the periods of day and night, and the performance of particular functions during these periods, that is not the mere effect of custom. All nature awakes with the rising sun. The birds begin to sing; the bees to fly about with murmurous delight; the flowers, which close under the embrace of darkness, unfold themselves with renewed beauty to the light—for plants sleep as well as animals; the cattle arise to crop the dewy herbage, and man goes forth to his labor until the evening. At the close of day, the instinctive nature of animals shows the reverse of all this activity and motion. The songs of the birds, one after another, become hushed, till at length all is silence, and nature is left to sleep amid the falling dews; action is succeeded by listlessness, energy by languor, the desire for exertion by the inclination for repose, and sleep, with her leaden scepter, holds her dominion over the world.

Now, the sensorial powers being sufficiently exhausted, we naturally fall asleep. As the exhaustion is a gradual process, so is that of slumber. The senses gradually become unconscious of impressions, and, one after another, part with sensation—the sight first, then taste, smell, hearing, and last touch, or feeling, all in regular order. The brain does not all at once glide into repose, its different organs being successively thrown into this state—one dropping asleep, then another, then a third, till the whole are locked in the fetters of slumber. The ordinary exertions of man run down the circulation every day of his life; and the first law of his nature, by which God (who is not only the giver, but also the preserver and sustainer of his life) prevents him from destroying himself, by this change of day and night, necessary for the renewal of his strength, so that repose may succeed action. The sweetness of labor is only equaled by the sweetness of rest; and when they harmonize together, the influence is alike beneficial to mind

and body. The night succeeds the day, and the day succeeds the night, in harmonious order, while the day of rest closes the week. The former affording repose to the body, the latter to the soul. Night is the proper period for sleep.

Many facts can be related, which satisfactorily prove the advantages of sleeping during the night instead of the day. An experiment was made by two colonels of horse in the French army, who had disputed much which period of the twenty-four hours was the fittest for marching and for repose. As this was a very interesting subject, in a military point of view, to have it ascertained, they obtained leave from the commanding officer to try the experiment. One of them, although it was in the heat of summer, marched in the day, and rested at night; he arrived at the termination of a march of six hundred miles, without the loss of either man or horse. The other, who conceived it would be less fatiguing to march during the cool of the evening and part of the night than in the heat of the day, at the end of the same march, had lost a great many of his horses and men, and much sickness prevailed among his troops. This experiment was also made with our army in Mexico, to avoid the intense heat of the day, and resulted in the same manner.

There is a distressing condition of the system marked by an inability to sleep, when, through the dreary watches of the stillest night, repose is solicited in vain, and the individual rises in the morning, even more exhausted than when retiring, in hopes of rest in the preceding evening.

Sleep takes place as soon as the sensorial power, which animates the frame, becomes weakened. The volition and the organs of the senses are exhausted, and this exhaustion, under common circumstances, occurs at our ordinary hour of going to rest, or sooner, if any thing—such as heat, monotony, fatigue, or food may happen to diminish it. But the sensorial power may be increased by various means; as in cases of physical suffering, or excited imagination, and consequently is not expended at the usual time. In this case the person remains awake, and continues so until the period of its exhaustion, which may not happen for several hours after he lies down, or even not at all during the whole of that night. Now whatever increases this power—whether it be balls, assemblies, concerts, grief, joy, or bodily pain, or oppressing the stomach by late suppers or intemperance—is prejudicial to repose. By them the mind is excited to a pitch of unnatural action, from which it is necessary it should descend, before it can roll into the calm channel of sleep. Whatever stimulates the external senses, however slightly, may prevent sleep. Thus the ticking of a clock has this effect with very sensitive people, when unaccus-

tomed to it, although with others it has the opposite effect. A candle burning in the chamber is attended with the same result; even when the eyes are shut this may take place, the eyelids being sufficiently transparent to convey the rays of light to the retina. For the same reason, the light of day pouring into a window may awaken us from slumber, without the intervention of any other circumstance. It is said that Napoleon could never sleep if exposed to the influence of light, although in other circumstances slumber appeared at his bidding, with surprising readiness. Certain stimulating agents, such as tea or coffee, taken shortly before going to bed, have often the effect of preventing sleep. I would impute this to the irritable properties, which, by supplying the system with fresh sensorial power, enables it to carry on uninterruptedly all its functions, longer than it otherwise would do, and consequently prevent it from relapsing into slumber at the usual period. Any uneasy bodily feeling has the same effect, both preventing the accession of sleep and arousing us from it when it has fairly taken place. Thus while moderate fatigue induces slumber, excessive fatigue, owing to the pain and irritation it naturally occasions, drives it away.

Cold is most apt to induce sleeplessness, when it is only partial and only affects one organ at a time, especially the feet; for when general and very intense, it sometimes has the opposite effect, and gives rise to drowsiness. Sleeplessness is sometimes produced by a sense of burning heat, in the soles of the feet and palms of the hand, to which some people are subject sometimes after lying down. This seems to proceed from a want of perspiration in these parts, owing in general to a bad state of the digestive organs, or mental emotions, such as anger, joy, love, sorrow, or deep study, which are unfavorable to repose. If a man, as soon as he lays his head upon the pillow, can manage to get rid of his ideas, he is morally certain to fall asleep. There are many individuals so happily constituted that they can do so without any effort. So far from being tortured by intrusive thought, their ideas take flight without ceremony, and do not visit them till they are required upon awaking. It is very different with those, whom an excess of care, imagination, or study overwhelms with its burden.

The sorrowful man, above all others, has the most need of sleep; but far from breathing its benignant influence over him, it flies away, and leaves him to the companionship of his own sad thoughts. His slumbers are not sleep, but a continuance of enduring thought. It is the same with the man of vivid imagination. His fancy, instead of being shrouded in the silence of sleep, becomes more full of imagery; thoughts, in a thousand fantastic forms, pass through the mind, whose excessive activity spurns at repose, and mocks all the endeavors of its

possessor to reduce it to quiescence. Great joy will often drive away sleep for several nights successively, but in this respect it is far inferior to grief—a fixed attack of which has been known to keep the sufferer too much awake for many months.

Those who meditate much, seldom sleep well in the early part of the night. They lie awake, perhaps, for two or three hours after going to bed, and do not fall into slumber till toward morning. Persons of this description often (very improperly) lie long in bed, and are reputed lazy by early risers—although, it is probable, they actually sleep less than those early risers themselves. Long continued study, particularly at night, is highly prejudicial to sleep. Boerhaave mentions that, on one occasion, owing to this circumstance, he did not close his eyes for six weeks.

With regard to the treatment of sleeplessness, a very few words will suffice—in fact, upon this head, little more can be said than a recommendation to obviate the causes from whence it proceeds, and the effects naturally disappear. I may mention, however, that where there is no specific disease, either of body or mind, to which the want of sleep can be imputed, the person should keep himself in as cheerful a mood as possible; and should, if his strength permits, rise early, take the cold bath, and exercise so as to fatigue himself moderately. Studious men ought to avoid late readings, and, on going to bed, endeavor to abstract the mind from all intrusive ideas. They should try to circumscribe their thoughts within the narrowest possible circle, and prevent them from rambling. The more the mind is brought to turn upon a single impression, the more it is made to approach to the state of sleep—which is the total absence of all impressions. In some cases of restlessness, sleep may be procured by the person getting up and walking about the room for a few minutes. It is not easy to explain on what principle this acts, but it is certain that by such means sleep is sometimes caused, when previously it had been solicited in vain. Washing the body in cold water, and rubbing immediately after with a coarse towel, will produce refreshing sleep. When sleeplessness proceeds from heat of the weather, after bathing in cold water with a wet towel, the person should lie very lightly covered, and let the air circulate very freely through his room. When it arises from a burning in the soles of the feet, or palms of the hands, these parts should be bathed well with cold vinegar and water, both before going to bed and during the existence of the heat, which usually occurs two or three hours after lying down. Attention must also be paid to the stomach and bowels, as this species of sleeplessness generally proceeds from a disordered state of these organs. Hence intemperance in

eating or drinking, all indigestible articles of food, and late suppers should be avoided.

An easy mind, a good digestion, and plenty of exercise in the open air, are the grand conducives to sound sleep; and accordingly every man, whose repose is indifferent, should endeavor to make them his own as soon as possible. Never sleep with the head covered, as the air under the clothes is apt to be vitiated, for the skin secretes perspirable matter, carbonic gas, etc. Children should sleep alone as much as possible, if we would give them vigorous lungs, sound bodies, free circulation of blood, and sound minds. Pure air and exercise is a remedy for a host of physical derangements, and far better than physic. Fat persons should sleep little and exercise much. Too much sleep weakens the nerves, disorders the brain, produces peevishness, leads to apoplexy, palsy, disturbs the heart, excites palpitations, blunts the sense of feeling, and relaxes the system, by over perspiration in bed. Hearty suppers, strong tea and coffee, disturb the sleep. Early rising and exercise strengthen the fibers, whereas morning sleep relaxes the solids. The passions disturb the sleep and induce many diseases, as I have before stated.

*Solidification* (that is, the conversion of blood into the solid parts of the body) goes on only during sleep. The chief end, indeed, and object and intention of sleep, would seem to be this final assimilation of our food—this solidification of the blood into the several solid parts of the body. The accomplishment of this miraculous change seems to have required the perfect concentration of all the energies of the system upon itself. It appears to be required that every thing, both within and without the body, should be hushed into profound repose, during the accomplishment of this nightly wonder, in order that nothing might disturb or interfere with the exquisite and miraculous processes employed to effect it. To this end the portals of sensation are closed—the eyes see not, the ears hear not, the skin feels not, the very breathing is scarcely audible, and the pulsations of the heart are scarcely perceptible. All the living energies are now concentrated, with the greatest possible intensity, like rays of light into a focus, and directed, with almost complete exclusiveness, toward this simple object.

In the day, therefore, we make blood; in the night that blood is converted into solid matter. In the day, we garner up the building materials; in the night, we repair the building. The hour of rising, therefore, ought to be the time at which our physical strength is at the greatest; and with perfectly healthy persons this is the case. The languor which sickly persons feel in the morning, arises from the processes of repair not having been fully accomplished; the body

has not been repaired, and therefore its strength has not been restored. The additional strength which is felt during the day, after eating, is only apparent; it is merely excitement derived from the stimulus of food; in the first instance in the stomach, and after that food has been assimilated, of new blood in the system.

From all this, we learn two important truths: first, that we should take our severest exercise in the early part of the day; secondly, we learn how and why it is that late suppers are improper.

If you would preserve your health, therefore, exercise, severe exercise—proportioned, however, to your strength—is the only means which can avail you. Recollect, the body must be disorganized, wasted, sweated, before it can be nourished; recollect the mode of training horses for the course, and men for the prize-ring. With plentiful bodily exertion, you can scarcely be ill; without bodily exertion, you can not possibly be well. By "well," I mean the enjoying as much strength as your system is capable of; and if you are in search of some charm, some talisman, which will enable you to indulge considerably in the pleasures of the table with comparative impunity, you will find it in bodily exertion, and bodily exertion only. I say—bodily exertion, to the extent of quickened breathing and sensible perspiration, kept up for three or four hours out of the twenty-four; say, by a walk of a mile or two before breakfast. Exercise taken before breakfast is worth all that can be taken afterward. I might, in a few words, include the whole subject—temperance and exercise.

But, to those who, from any cause, can not take bodily exertion, attention to diet is necessary. Even here, simplicity and quantity, rather than quality, form the grand consideration. They can not well take too little food; and wine and other strong drinks are wholly inadmissible. And let them only reflect on the mechanism of nutrition, on the manner in which our food nourishes us, what becomes of it after we have eaten it, and they can not but clearly see that this advice is sound and wholesome doctrine.

Again: "Disorders of the body, in these days, are engendered and propagated to a frightful extent, by moral commotions and anxieties of the mind." And if I have proved that corporeal exertion, especially when aided by any intellectual excitement or pursuit, can obviate the evils that ensue to soul and body from these causes, I shall do some service to the community.

It is within the reach of high and low, rich and poor, the learned and unlearned. Let moral ills overtake any of these, and he is on the highway to physical illness. To prevent the corporeal malady, and to diminish, as much as possible, the mental affection itself, the individual must tread in the steps which I have plainly laid down.

He or she must keep the body active and the stomach unoppressed, remembering that exercise gives health, vigor, and cheerfulness, sound sleep, and a keen appetite. The effects of sedentary thoughtfulness are diseases that embitter and shorten life, by interrupted rest, tasteless meals, perpetual languor, and ceaseless anxiety. The distinguished Abernethy says, "If you would be well, live upon sixpence a day and earn it."

"Sleep is kind nature's sweet restorer," and as night approaches with its sable pall, we are irresistibly urged, when in good health, to enjoy its temporary pleasure. How culpable are those, who, from a sordid motive, in order to gratify their passions, deny themselves this important aid to good health; interrupting the regular order of nature, enervating their constitutions, and destroying their gayety of heart! Why should we shorten the days which our Heavenly Father has desired that we should enjoy, by refusing the gift He has given us to prolong our life?

The nights may come, and to many people have already arrived, when instead of sweet, refreshing sleep, we may be tossing to and fro from one side of our bed to the other, counting the weary hours as they roll on, and wishing in vain for a moment's repose. Few know the real value of all the blessings our Maker has given to us, until the loss of them brings the conviction to our minds, and we desire them in vain. It is well known that young persons require more sleep than adults, and that more sleep is requisite in winter than in summer The average duration of sleep, which may be recommended for grown people, is eight hours, but ten, or even twelve, is none too much for very young children.

*Sleep and Insanity.*—Dr. Brigham, of New York Asylum for the Insane, expresses the opinion that the most frequent immediate cause of insanity, and one of the most important to guard against, is the want of sleep. "So rarely," he says, "do we see a recent case of insanity, that is not preceded by a want of sleep, that we regard it as almost the sure precursor of mental derangement. Long continued wakefulness," continues Dr. Brigham, "disorders the whole system. The appetite becomes impaired, the secretions diminished or changed, the mind dejected, and soon waking dreams occur and strange phantoms appear, which at first may be transient, but ultimately take possession of the mind, and madness or death ensues." The doctor adds:

"We wish we could impress upon all the vast importance of securing sound and abundant sleep; if so, we should feel that we had done an immense good to our fellow-beings, not merely in preventing insanity, but other diseases also. We are confident that the origin of

much of the nervousness and impaired health of individuals who are not decidedly sick, is owing to a want of sufficient and quiet rest."

Dr. Brigham gives the following hints for the procuring of sound sleep:

"*First.*—It is important that the mind should not be disturbed for several hours before retiring to rest.

"*Second.*—Retire early, and neither when very warm or cold; sleep on a hard mattress, or on a bed not very soft. The bed-room should be large and well ventilated, and the bed should not be placed near the wall or near a window, as such an arrangement often exposes the person to currents of cold air.

"*Third.*—There should be nothing tight about the neck, and the Chinese rule of brushing the teeth before retiring is a good one. Tea and coffee, taken late in the evening, are apt to disturb the sleep. Strive to banish thoughts, as much as possible, on retiring to rest. Study during the evening is improper."

It is asserted that a grain of camphor, in pill form, followed by a draught of an ounce and a half of the infusion of hops with five drops of sulphuric ether in it, will procure sleep in the first developments of insanity, when nothing else will. It has been tried and its success acknowledged. Bathing the head with spirits of camphor will often produce sleep in the most nervous persons.

In a long experience in my practice, I have found nothing that renders sleep so refreshing as the cold bath every night, and so invigorating and strengthening as the cold bath on rising in the morning, and rubbing immediately after it with a coarse towel.

I shall close my remarks on sleep by introducing two strange cases, which I have visited, one in Europe, and the other in the United States. The following facts are all attested by the most respectable persons with whom I conversed, together with many eminent physicians. It is the case of the sleeping man, Cornelius Vróman, who was exhibited in one of the rooms of the National Academy, New York.

He was born in Schoharie County, New York, and was a farm laborer till his thirty-second year, when he fell into the strange malady under which he recently labored He complained, at first, of a kind of stupor, and remained in a state of partial insensibility for twenty-four hours. This yielded to medical treatment; but, a short time after, he fell asleep, and remained asleep, with very short and rare intervals. The shortest time he has remained awake during this period, is twenty minutes; the longest three hours. The longest time he has slept without waking is eighteen months; the shortest, twelve weeks. When he awakes, he immediately asks for food, eats voraciously, and talks of the occurrences which happened just before

he sunk into his inexplicable oblivion. When informed that he has slept for several months, he turns away with an air of disgust, as though offended. That the oblivion is complete, is shown by the fact that, on one occasion, owing to the carelessness of his attendant, he was severely burned, but exhibited no sign of pain. He is fed, morning and evening, upon bread and milk, his mouth being forced open with some difficulty and filled with food, which he then swallows There is a movement of the system, on an average, once in twelve days. His weight, before he became thus affected, was about one hundred and forty pounds; he now weighs ninety pounds. His pulse is generally slow and feeble; but sometimes, without any visible cause, it becomes rapid. His skin is harsh to the touch, and the temperature of the body perceptibly lower than is natural. Every thing that could be thought of for his resuscitation has been done, but without the slightest effect. He has been blistered, bled, burned, kept without food for five days at a time, soused in cold water, scalded with warm, and has slept soundly through it all. When he wakes it is from no cause that can be ascertained.

His appearance is merely that of a pale, long-bearded man in a deep sleep. His body is extremely emaciated, but his face not remarkably so. His breathing is not audible; nor does he ever move, groan, or sigh in his sleep. He is, in fact, a dead man; but his soul, in some way, seems entangled in the "mortal coil," and can not get away. It was supposed by the crowd of physicians who surrounded this man on the evening of our visit, that no similar case had previously occurred. But I told them that I had visited in England, near Southampton, a woman, who was then living, who had slept for twenty-one years, with a single wakeful interval of three weeks.

The exhibition of Vroman, in New York, may chance to lead to his recovery; but, in case he should not recover, a careful *post-mortem* examination may throw light upon the mystery of sleep—may lead to the certain knowledge of its nature and cause.

We need not have recourse to extraordinary events to be convinced of the inconceivable power and wisdom of God; we have only to look around us. He shines conspicuously in the least of his works. Of the many remarkable things of which he is the author, I wish to call your attention to one, which, because it daily occurs, is not the less deserving of your observation. Often as you have been refreshed by sleep, perhaps you have never reflected upon this singular state, nor regarded it as one of the most extraordinary effects of Divine goodness. When sleep overpowers us with a pleasing forgetfulness, we do not think it wonderful; we believe our body is formed for such a state, and that the inclination, prompting us to indulge in sleep, proceeds

from natural causes. Perhaps we may with propriety consider sleep under two points of view. On the one hand, there is nothing to be observed which does not result from the peculiar nature of our organization; on the other, there is something so striking and wonderful in this natural effect, that any labor bestowed upon the consideration of it will be amply compensated.

Sleep comes upon us imperceptibly. If we endeavor to ascertain the exact moment, the attention we give will be an obstacle to its approach nor shall we be able to sleep till all such ideas are dissipated. Sleep comes unsolicited; the more efforts we make to obtain it, the less likely are we to succeed. God has so appointed sleep, that it becomes an agreeable necessity; and he has rendered it independent of our reason and of our will. Let us pursue this consideration, and muse upon the wonderful state we are in during sleep. We live without being conscious of our existence. The functions all act with their wonted regularity. The activity of the soul, for a space, seems to be suspended; the senses are benumbed; the muscles inactive, and all voluntary motion ceases. In short, the state of sleep is truly wonderful, and very much resembles that of death. Who can think of sleep without being at the same time reminded of death, which sooner or later will imperceptibly steal upon us, or seize us without warning, unwished for and unexpected? The senses, whose functions are suspended during sleep, are equally incapable of action at the near approach of death. The ideas are also clouded; we notice not surrounding objects, and a dark oblivion vails our faculties. Let devotion often present this meditation to our minds. Whenever we seek for repose upon the downy pillow, let us reflect upon the blessings of sleep, and look up with gratitude to Him who, during our seclusion from toil and labor, watches over our slumbers, and preserves from danger our helpless tenement. For, if a protecting hand did not shield us, to how many perils might we not be subjected during the night season!

It is painful to observe that most people abandon themselves to sleep with the utmost carelessness. Considering it only in respect to our bodies, the change produced in them by sleep is very considerable and important. If we consider it in other respects, and reflect upon what may take place during the awful stillness of the night, it appears to me that we ought never to resign ourselves into the arms of sleep without due reflection upon our state, and being in some degree prepared for what may take place.

How thankful should we be to the Creator for the blessings of sleep! Those whose hearts are oppressed with grief, whom doubts and anxiety assail, whom maladies afflict, tossing on their pillow, a prey to care and distracting thoughts, alone can estimate the value of sleep, or know the sweets of its influence. Let not its treasures be abused; do not

indulge them to excess, by suffering indolence and effeminacy to prolong your slumbers beyond the time which nature seems to require; nor suffer avarice, ambition, or any passion to curtail the necessary hours of repose. Above all, endeavor to secure a pure repose by the tranquillity of your mind; let it not be ruffled by contending emotions, nor disturbed by the pangs of a conscience ill at rest; and be well prepared to enter the presence of your God; for you know not but this night you may be among the number of those who lie down to rise no more. Let this be your thought: "If, during this night, my soul is required of me, am I ready to stand before my Maker, before that Being from whom nothing is hidden? We daily feel our deficiencies and the weakness of our hearts; which we beseech the Lord to pardon, and to blot out from all remembrance, for the love of Christ Jesus."

Such are the conditions of sleep in the normal being. Sleeplessness in such a person is readily ascribed to some cause, such as overwork, worry, etc., and when the cause is removed, sleep again returns. The abnormal, *i. e.*, the sick or injured person, also requires sleep, yet the very nature of the malady or injury prevents sleep; then it must be secured by some drug.

Opium—morphine—is probably the surest of all drugs to produce sleep, but it should be used only in such cases of sleeplessness as are caused by intense pain. Chloral, Trionol, Sulphonal, and Bromides may be used in other cases; but all of these are powerful drugs and should be used only upon the physician's order.

## COLD BATHING.

We are no hydropathists, in the ordinary acceptation of the term, but we are desirous to do justice, and give such information honestly and fearlessly to our readers, in such matters as will be most essential and beneficial in prolonging life and arresting disease. The cold, tepid, warm, or shower bath, as it may agree with the person who uses it, as a means of preserving health, ought to be in as common use as a change of apparel, for it is equally promotive of necessary cleanliness. When the saline and animal elements, left by the perspiration, are not duly removed by washing or bathing, they at last obstruct the pores, irritate the skin, and produce many diseases. This is the reason that in the eastern and warmer countries, ablution and bathing have assumed the rank and importance of religious observances. The importance of this habit of bathing once a day can not be too strongly urged upon persons desirous of obtaining and preserving their health. We ought to wash all over with water every day, so as to cleanse the pores of the skin, and with a rough towel rub thoroughly after the bath. If one-tenth of the persevering attention and labor bestowed to so much purpose in rubbing down and currying the skins

of horses, were bestowed by the human race in keeping themselves in good condition, and a little attention were paid to diet and change of clothing, colds, nervous diseases, and stomach complaints, with many female complaints, such as weakness, diseases of the womb, whites, irregularity of the monthly sickness, together with the many nervous disorders under which females suffer, would cease to form so large an item in the catalogue of human miseries. If the bath can not be had at all places, water and a little soap may be obtained every-where. Then wash the body over as quickly as possible, and rub well with the towel so as to rouse the circulation. It will afford the finest glow to the body, and produce the most delightful feelings of comfort. Remember you should accustom yourself gradually to the use of the cold bath. First tepid, or warm, and by degrees diminish the heat until you become accustomed to the cold bath. For some diseases, when not too warm, and not prolonged beyond fifteen or twenty minutes, the tepid bath may be employed daily with perfect safety and advantage, by persons in health; while invalids, whose condition requires its use, are often strengthened by a much longer and equally frequent immersion. In winter especially, and for those who are not so robust and full of animal heat, perhaps there may be more benefit from the general use of the tepid or warm bath. All depends, however, on the speedy method in which it is done in the cold or shower bath, wiping immediately dry, and possibly lying for a few moments in bed, covered, until reaction takes place.

Bathing is too much neglected in this country, either from want of thought upon its importance, or a want of convenience for its enjoyment; but with a little expense such convenience might be provided wherever there is a pump, well, or spring of water. The facilities should not only be afforded, but those who have charge of families, should make it a point to see that they are provided with such necessary articles, and attend in instructing them as to their use and benefits, and thereby not only preserve health, but save many a doctor bill, and not unfrequently prevent a lingering disease in his family. Ask the laboring man, ask any one who labors with mind or body, or who is accustomed to being daily or very frequently refreshed with the shower or plunging bath, what would induce him to forego it? Rising in the morning exhausted and languid, from the effects of oppressive heat, he comes out from his bath invigorated, and capable of thinking not only more clearly, but working with so much more alertness and satisfaction, that he would sooner relinquish one meal a day than give up his bath. He only, who habitually enjoys it, can estimate the privation when no means are to be had for the indulgence. Those who have investigated the art of preserving health, will find that the cleanliness of the person is to be considered next in importance after air and food.

The temperature of the cold bath varies from forty-five to eighty-five degrees Fahrenheit. In a medical point of view, it is considered as a tonic and stimulant when not too long continued. In order to produce its full effects, the bather should feel a pleasant glow upon the surface of the body, immediately on coming out of the water. If the sensation of coldness or shivering follow the bath, the immersion should not be repeated.

In using the cold bath, it is of essential importance to know that there is no truth in the popular opinion, that "it is safer to enter the water when the body is cool, and that persons heated by exercise, and beginning to perspire, should wait till they are perfectly cool." For it is a rule, liable to *no exception*, that *moderate exercise ought always to precede cold bathing;* as neither *previous rest*, nor *exercise to a violent degree*, is proper on this occasion.

The best place for cold bathing is in the sea, a clear river, lake, or pond; but when none of these can conveniently be had, the bathing-tub, shower bath, or wet towel, should be vigorously used.

The morning is a proper time for using the cold bath, unless it be in a river or lake; in which case, the afternoon, or from one to two hours before sunset, will be more appropriate. On the whole, one hour after a light breakfast, or two hours before, or four hours after dinner, are regarded as the better periods of the day for the purpose.

The best preparation for cold bathing for invalids is, to begin with a warm bath, then a tepid one, after which, in most cases, they may plunge with safety into a cold bath. Generally, an immersion every second day from the commencement of warm bathing to the end of a fortnight, will suffice; after this, the cold bath may be continued daily. Persons in health, and possessing robust constitutions, should bathe, year in and year out, at least twice a week, in cold water, and if these ablutions be performed daily, so much the better will it be for their health.

On entering a cold bath, the head should first come in contact with the water, either by immersion, by being showered upon, or by covering it a minute or so with a wet cloth. Afterward, the bather may plunge into the water headlong, as the immersion will be less felt when it is effected suddenly. As it is of consequence that the first impressions should be uniform over the whole body, the bath ought not to be entered slowly, nor timorously, but with a degree of boldness.

For these reasons, the shower bath is attended with considerable advantage, because it transmits the water quickly over the whole body. Therefore, while in the water, the bather should not remain inactive, but apply brisk and general friction, and move his arms and legs, by swimming, or otherwise, in order to promote the circulation of the blood from the heart to the extremities. For, in all cases, it is

extremely imprudent to continue in the bath until the body is attacked with chilliness.

In our large cities, frequent bathing has become an almost universal practice. Few houses are built without a room furnished with all the apparatus for a plunge and shower bath. In many, both hot and cold water are introduced, but the tepid bath, unless for very frail constitutions, that are unable to bear the shock of the cold plunge, does very little good. To those thus supplied, we have very little to say, more than to advise them not to neglect such opportunities; but we were astonished, on a recent country excursion, to find how few families were supplied with any thing like conveniences for this "aid to neatness," this health-preserving habit. In many instances a bath-house might have been erected at a very small expense, and cold water supplied in abundance from neighboring brooks or ponds. Again, a little stream coursed by at the very door, and might still more easily have been put to profitable use. Our farmers never forget the barn, the corn crib, or the "spring house;" but a bath-room, quite as necessary to the comfort and health of their households, rarely enters into the calculation. Even when it is impossible to convey a sufficient supply of the element directly into the house, a sponge, and plentiful buckets of water, will be found to answer the purpose admirably, where a bath is unattainable. No person is excusable for neglecting a daily ablution, with the common "wash-bowl and pitcher" apparatus within reach. With them, and a square of oil-cloth to protect the carpet or floor, he may gain comfort and increasing strength, with very little trouble and expense.

We have seen families in the country—nor was it many years ago—where once a month was considered often enough for bathing; ay, and we blush to record it, some extended the period indefinitely, particularly in winter. Face and hands duly cared for morning and afternoon, the duty of neatness was supposed to be fulfilled. This is an unpleasant truth, but not the less a fact; and we fear it has not altogether passed away. Let us hope, from the great benefits the cold bath has, for the last few years, produced throughout our country, that we may speedily see a radical change, and this valuable remedial agent be introduced into every family.

The only objection that can be urged against this healthful practice is prompted by indolence—a cowardly shrinking from the trouble, and mayhap, from the chill of the first plunge; but this grows less and less—habit will aid us—and by rising a few minutes earlier, the busiest man or woman may secure the necessary time. Then the warm glow, and brisk, healthful circulation that succeeds the chill, is an ample repayment for all transient discomfort. The unshrinking use of a

coarse towel, a short, quick walk in the open air, if possible, directly after, and the most delicate will return with a good appetite to the breakfast-room; a prescription that we would enforce by earnest solicitations, for a trial at least, to those of our readers who wish a long life and a healthful one.

Many persons, too, are most benefited by the shower bath. In a word, all sensible individuals can determine when and how to bathe; but bathe, at some time, and in some manner, they should. If we were asked what was most needed for the health of the country, we should say, "Baths—baths—baths." Every dwelling-house ought to have a bath, just as it has a kitchen; for one is quite as necessary as the other.

The cold bath is beneficial. Generally it is the best stimulant of the nerves, the best quickener of every function, and the most delightful invigorator of the whole frame. Under its influence both brain and muscles are qualified for their utmost activity. It should not, however, be too long indulged in, lest it bring on debility; but the exact duration can not be laid down, as the same person, on different occasions, will require different periods of duration. A cold bath may always be safely applied, notwithstanding a popular notion to the contrary, when the surface of the body is heated by the warmth from without.

The fact is, there is no danger of going into a cold bath while perspiring: *First*, Because it has been practiced, by Priessnitz, on thousands of patients, for twenty years, and no single instance of mischief has been ever observed to arise from it. *Secondly*, It has been the habitual custom of the Russians from time immemorial, and no danger has been observed to attend it. *Thirdly*, The laboring classes of society are constantly exposed to be drenched to the skin almost daily, during the rainy months, while they are covered with perspiration, arising from their several out-of-doors employment, and no evil has been observed to accrue from it if equal exercise be continued; on the contrary, they suffer less from disease than those above them in wealth. Remember this. The continued application of cold water in acute diseases, as by the cold bath, or wet blanket or sheet, for several hours, will lessen the pulse, even to a thread, while the occasional use of the bath, accompanied by exercise in the air, simple diet, early hours, drinking nothing but cold water, will strengthen and harden the system to a degree infinitely beyond that which can be obtained by any other means whatever. Thus it supplies the place of the two grand engines of the old practice, viz.: quinine and the lancet.

I do not think the greatest benefit of the cold bath is to be found in its proving a remedy for every disease—though, as such, it is highly

valuable, and too little appreciated and used in this country. It is in preventing disease that its worth is pre-eminently seen. If commenced in infancy, almost any child may be inured to its use, and its constitution so tempered, by becoming gradually accustomed to its use, as to be little affected by atmospheric vicissitudes or changes of weather.

If commenced at adult age, before disease has begun its ravages, or the constitution is greatly undermined, any one may so far harden himself that sudden changes will do him but little injury. I consider the cold bath, if commenced early and properly administered, as the greatest safeguard against the various diseases with which we are acquainted. If it be true, as has been said of the aborigines of this country, that they immersed their newly-born infants in cold water, it is, to say the least of it, not a very unwise or injudicious practice. No person can live in our climate without exposure to its vicissitudes, and there is no guard so effectual as the use of cold water, in some way applied to the surface of the body. As a remedy in certain diseases, it is invaluable, as in small-pox, scarlet fever, measles, and other rashes. In all these we may wash the skin freely with cold water from the commencement to the close of the disease. It is thus rendered soft, the acrid matter passes more freely through the pores, and the fever is abated. In small-pox, the cold sea-bathing has been found quite salutary. Dr. Eberle, in his *Practice of Medicine*, on Scarlet Fever, says:

"The application of cold water to the surface of the body can not be too strongly recommended in the higher grades of this affection," and he quotes the following passage from Bateman: "As far as my experience has taught, we have no physical agent by which the functions of the animal economy are controlled with so much certainty, safety, and promptitude, as cold water to the skin, under the augmented heat in scarlet fever, and all forms of disease where there is great heat. This expedient combines, in itself, all the medicinal properties which are indicated in this state of disease, and which we should scarcely expect it to possess, for it is not only the most effectual febrifuge, or cooling remedy, but it is in fact the only sudorific, or in plain language, sweating remedy, which will not disappoint the expectation of the practitioner."

I have had the satisfaction, in numerous instances, of witnessing the immediate improvement of the symptoms, and the change of countenance produced in the patient by washing the skin, and I have come to the conclusion (for there is no knowledge worth any thing unless founded on fact), that any fever may be cured by cold water, if properly managed. In using the cold bathing every thing depends upon common sense. Thus, if it be long applied, or applied when

the vital action is low, it dangerously depresses the vascular system, to be followed by a more or less dangerous and obstinate reaction; but if the system be tolerable strong, without being very excitable, the use of the cold bath, in a moderate degree, always safely increases vigor, and is one of the most valuable remedies. It is, therefore, always safe, so far to employ cold, as will help to maintain the ordinary temperature of the body. Thus in fever, when the skin is hot, sponging it with cold water is both most refreshing and curative; while a free use of cold water as drink, is most always, in such cases, highly beneficial; and I have witnessed persons with severe fever, wrapped up in a wet sheet for a few moments, then quickly wiped dry and put into bed and covered, so as to produce a gentle perspiration, or in other words, a moderate sweat, who were entirely relieved in a short time.

Cold water may be employed to modify and control, and cure a great number of diseases, especially those of a convulsive character.

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## WARM BATHING.

We apprehend that the real cause of the beneficial effects of one kind of bathing, and the injurious character of the other, depends on the particular individual, and that while cold bathing is healthy for some persons, hot baths are healthy for others. Medical writers, who have studied the subject, inform us that robust persons are benefited most by cold baths; and debilitated ones by warm baths. This is the view especially by Dr. Moore, in his work on *Health, Disease, and Remedy*. Strange as it may seem, experience has proved that, after great fatigue, the apparently enervating warm bath is peculiarly refreshing, a fact of which Napoleon availed himself, it being his practice, after having been on horseback for the whole day, as he frequently was, to take a warm bath and retire to rest.

In all nervous disorders accompanied with debility, in all cases where there is a dryness of the skin and tendency to feverishness, in continued loss of sleep, in excessive fatigue, and in convulsive diseases of children, warm baths have been in my practice generally successful. Where there is an irregular circulation of the blood, as when a person can not take due exercise, and is subject to coldness of the feet or hands, warm baths are beneficial. In many forms of congestion and dyspepsia, with tenderness of the stomach, the warm bath possesses highly curative powers. But to plethoric persons, to persons subject to hemorrhage, or bleeding of any kind, or where there is

acute disease of an inflammatory kind affecting internal organs, more especially the heart, lungs, or bowels, warm baths are decidedly injurious. Where there is any structural disorder of the heart, however, the use of the bath in any form is at all times attended with risk. Generally, the warm bath promotes appetite, digestion, and sound sleep, renders the body highly electric, and, if not indulged to excess, contributes to the establishment of increased vigor. When, however, warm bathing is employed excessively, it produces a flaccidity of the system, and encourages that relaxation of the veins which leads to undue formation of fat. Whenever there is a tendency to dropsy, the warm bath should be avoided.

A warm bath has, in hundreds of instances, and thousands, averted and cured diseases that bitter experience tells us have proved fatal for want of one. That it is conducive to health; that it is frequently a good substitute for exercise and physic, when the former can scarcely be had, and the latter has been already too much swallowed, is indisputable. That it equalizes the circulation of the blood, renders the skin supple and moist, promotes free circulation, and relieves the body from a layer of thick, obstructive accumulation of the secretions of the sweat and sebaceous glands, and so proves salutary, giving thereby an impetus to absorption and secretion, is also a great fact; and, therefore, it is most wholesome and wise, on not too frequent occasions, to avail one's self of it.

*A man, to be healthy, who does not bathe in cold water, should certainly take a warm bath twice a week; certainly a week should not pass without one.* Let the skeptic try the experiment, and in addition to improved feelings, the great one of knowing his entire body to be clean, and spotless, and wholesome, will be such a comfort that a misery is in store if the practice be omitted. The effect of a warm bath to a person in health is highly delightful. The sensations during the process are exquisite, and afterward no less so. The liberty of motion, the pleasurable and agreeable diffusion of warmth, and the perfect ease during the indulgence, have no parallel. The flexibility of the joints, the freedom of respiration, the improved tone of nervous feeling in mind and body, the intellect being brighter, and every faculty livelier—memory, thought, and idea, at command, after the bath, are notorious truths known to the patron of the warm ablution. The next view may be the virtues of warm bathing in illness, in severe cases, or to a person (for these observations apply to both sexes, and of the two with perhaps greater right to the ladies), in delicate health, or in dyspeptic or nervous debility. First, the bath allays all pain, and removes all not positively inflammatory; and even in these cases it is highly serviceable under proper advice. It quiets all

nervous irritability, promotes general perspiration, quickens and yet softens the circulation, overcoming thereby obstructions in the deep-seated parts, and allowing an easy and regular flow of the blood throughout its course. Warm bathing also acts beneficially on the kidneys and urinary organs; it helps the bowels, and stomach, and liver, giving new life to each, the action of each being thereby healthily excited; it consequently promotes digestion, and, contrary to the popular fear of a warm bath weakening, it in reality strengthens the system; and furthermore, in opposition likewise to the apprehension that a warm bath is dangerous, as being liable to give cold afterward, it, I unhesitatingly declare, fortifies you against one. Colds are only taken when the bath exhausts, when it is taken too hot, or the bather has been too long in it, or he incautiously submits himself to draughts, or lingers about in the cold and damp air and so "takes a chill," on coming out of one. In all cases of restlessness—the fidgets—in hypochondriasis, better known as low spirits—general bodily and mental depression—the warm bath is most useful; it tranquilizes the whole system, induces a good night's rest, soothes excitability, stills an irregular and fluctuating pulse, and calms a turbulent mind. As a matter of health and duty, the bath is imperative; as one of ease and comfort, and enjoyment, and lastly of cleanliness, incomparable: omission from distrust in the first instance, is folly; from dilatoriness or indolence, or on the score of trouble or expense, unpardonable.

The usual temperature of the warm bath is ninety-eight degrees, but according to the object in view, it can be modified and borne at the pleasure of the bather: if taken for mere refreshment and cleanliness, the above heat will prove very agreeable, and suitable for the purpose; if suffering from cold or other indisposition, and perspiration be desirable, one hundred degrees will be found effective, and ten minutes are quite long enough to remain in it; if the stay be much protracted, exhaustion follows, and the effect is hurtful. The French people accustom themselves to pass a full hour in the warm bath, but the practice is relaxing, and, indeed, enervating; and the people of this country would soon find it so. The best time for taking a bath is before a meal, or else some time after one. The morning is the most favorable for invalids, because the body is fresh, and able to encounter any little extra fatigue; but the bath is equally serviceable at all periods of the day—morning, noon, or evening; and those persons whose engagements are imperative, during what are called business hours, must not plead "the fear of taking cold after sunset," as an excuse for the omission. Indeed, the apprehension of taking cold, (which prevails to a popular degree), after a warm bath, under any circumstances, is quite groundless; for, in fact, instead of predisposing

a person to a catarrh, or a rheumatic attack, or, in plain words, a cold, the bath absolutely helps to keep one or either off. The absolute effect of a hot bath is, that it stimulates, arouses, and keeps up the circulation, thereby diffusing warmth throughout the frame, which renders it invulnerable to the dreaded evil; and if a man does not suffer that excitement to subside, and does not linger about in the cold or damp air, but proceeds briskly on his way, he will derive th double benefit of feeling stronger and better, if possible, than before and of enjoying the refreshment of the immersion. A bath may be taken safely in the "bitterest" and coldest weather. Foggy, damp, and wet days are the least favorable for the indulgence. In the summer the bath is most essential, for the skin having double duty to perform, urgently requires to be kept clean, lest any obstruction to the perspiration should ensue. If the bath be wanted for a specific purpose, and the illness be one of uncertainty, a medical opinion had better be had; but I am not speaking "*fee* prospectively," for, invaluable as professional guidance must be admitted to be on every occasion, especially if it be good, I always advocate that common sense should tell "when to run for the doctor," and when to do without him, and, therefore, must leave my readers to discriminate for themselves. Great as the pleasure, delight, and salubrity of warm bathing is, there is a time and season for all things. I have observed, that for cleanliness, and comfort, and health, a warm bath may be taken once a week, or once a fortnight, at least, but for special purposes, one may be taken daily for a time, or twice or thrice a week; but the practice must not degenerate into such frequency as to enervate and enfeeble, which, like any other practice carried to excess, it will do. All that I can add is, that the warm bath is a most excellent adjunct in the restoration and maintenance of health. It rarely hurts one, but its services are manifold; for cleanliness is a speaking advertisement, and carries with it the comforts, agreeable feelings, and permanent health, which nothing else can so effectually insure.

I can not conclude this important subject without remarking, if we would attend more to bathing, diet, exercise, and simple remedies, we would have but little use for the physician, and thereby prolong life to a good old age.

The warm bath is among the most useful of remedial measures. One who has experienced the delicious refreshment of a warm bath at about the temperature of the blood, (100,) whether from disease or exertion, will need no argument in its favor. It is exactly under such conditions that it is most useful. From time immemorial, warm springs, or tepid water, have been considered highly valuable as a remedy for relieving nervous disorders, and diseases dependent on

insufficiency of blood and exhaustion of the brain, such as the dyspepsia, and individuals debilitated by excitement, bad habits, and hot climates. The mode in which it acts seems evident—it checks waste of warmth from the skin, invigorating its vessels without producing perspiration, admits a little pure water into the blood by absorption, and by its tranquilizing influence on the nerves, favors the action of any function that may have been checked or disturbed. The body becomes highly electric in warm water, and probably all the conditions of increased power are present for the time at least; and of course, so far as warm bathing promotes appetite, digestion, assimilation, and sound sleep, it contributes to the establishment of increased vigor. Thus we find that hypochondriacal patients have often found new hopes in the genial bath, as it embraced and laved their naked limbs; and they have rejoiced with the most delightful feelings in the sunny air, and taken their meals with an appetite of which they were previously deprived. The warm bath, however, should not be resorted to too much; this remedy may be made a luxury, and thereby its medical virtues abused. When continually resorted to by persons in health, it predisposes to excessive formation of fat. For the same reason, it is generally injurious where there is a tendency to dropsy.

In all climates, the warm springs are of great benefit in all diseases of the skin—neuralgic and rheumatic diseases, and scrofula. Warm baths are useful in all nervous disorders, attended with debility, in all cases in which there is dryness of the skin and a tendency to feverishness, in mental fidgetiveness, in irregular circulation, as when a person can not take due exercise, and is subject to coldness of the feet or hands, and in many forms of congestion and dyspepsia, with tenderness over the stomach. It is serviceable in the convulsive diseases of children, and in painful diseases, especially of a spasmodic kind, but more particularly in cases of chronic irritation from local causes, whether of the skin or internal parts. As a general rule, use the bath as you find relief from it, which you can easily determine by a little attention to this matter. Remember that the tepid, or moderately warm bath, is a great luxury, and, when properly employed, is the natural means of ablution and of health. The four ordinary secrets of health are, early rising, exercise, personal cleanliness, and the rising from the table with the stomach unoppressed; and, I may add, avoid medicine as much as possible. With these rules properly observed, you may expect, and will no doubt enjoy, good health, without the aid of a physician.

In all climates warm springs are resorted to for the cure of cutaneous diseases, (or, in plain language, diseases of the skin), in neuralgic or nervous complaints, and rheumatic, or pains of the system gener

ally. Dr. James Johnson says of the waters of Pfeffer: "Lepers are here purified; the lame commit their crutches to the fire; the tumid or sore throat, and scrofulous neck, are reduced to symmetrical dimensions, and sleep revisits the victims of rheumatic pains and neuralgic tortures." In these baths patients are accustomed to lie six, eight, ten, and even sixteen hours a day. A German writer informs us, that the country people stay in these baths frequently from Saturday night until Monday morning. Let the hot springs of Arkansas be used with proper confidence, and they will be found as efficacious, in those diseases I have mentioned, as the warm springs of Germany, or the waters of Bath, in England. These waters contain, medicinally, sulphur, which acts with great force in rheumatic complaints. As it is the combination of heat and moisture that renders the thermal bath so efficacious, it frequently happens that a thoroughly hot bath most effectually facilitates the cure. The warm springs of Virginia are likewise celebrated for their medicinal virtues.

In all cases of an inflammatory kind, affecting the internal organs, such as the lungs, heart, and bowels, hot baths are not to be used, as the use of them in such disorders is at all times attended with risk. We find these capable of producing contrary effects, according to the condition of the body at the time. Thus it is with the virtues of cold water in fever and inflammation. There is no remedy, in my experience, equal to it; and I have not the least doubt, if cold water was more generally employed, it would control a great number of diseases without the use of active medicines, and, in truth, without any other medicines than teas and proper diet. The cold bath, like the warm bath, is capable of producing contrary effects, according to the condition of the body at the time. Thus, if the cold bathing be long applied, when the vital action is low, it depresses the vascular system; but if the system be tolerably strong, without being very excitable, the use of cold water, in a moderate degree, always increases vigor and strength, with delightful feelings after its use, or as soon as reaction takes place. I direct always to rub well with a coarse towel, then, for a short time, go to bed, and the ordinary temperature of the body will return. Thus in fever, when the skin is hot, sponging it with cold water will be found both refreshing and curative; while a free use of cold water, as drink, is almost always, in such cases, highly advantageous.

## OPEN-AIR EXERCISE.

MODERATE exercise in the open air, for the purpose of assisting the various secretions, is another essential requisite for the production and maintenance of good health. None can neglect this rule with impunity; but a sedentary life is certainly not so detrimental to those who live on vegetable diet. Unless sufficient oxygen be supplied to the lungs by daily exercise in the open air, the products of decomposition will fail to be removed in sufficient quantity for the maintenance of a healthy state, and the assimilation of new matter is impeded. Without exercise, also, the contractile powers of the heart and large arteries are feebly exerted, and though sufficient to carry the blood to the ultimate tissue, it is nevertheless not strong enough to carry it through with that rapidity necessary for health. The ultimate tissue being thus filled faster than it is emptied, congestion takes place in those delicate and important vessels which compose it, as well as in the large veins, the office of which is to convey the blood from the tissue to the heart. One of the chief conditions of the body in that general ill state of health, usually denominated "indigestion," is congestion of the blood in the ultimate tissues of our organs, the brain, the spinal marrow, the stomach, the ganglionic system, the liver, bowels, and all the organs concerned in the nutrition of the body. When the system, therefore, undebilitated by disease, will admit a good supply of oxygen by muscular exercise, it is the best means of diminishing the amount of venous blood (in conjunction with a legitimate supply of proper food), of increasing the amount of arterial blood, and in proportion as the latter preponderates over the former, shall we possess health and muscular strength, as well as elasticity of mind.

Of all kinds of exercise, walking is that which is the most universally attainable, and, at the same time, the best, calling, as it does, many muscles into action, and especially those of the lower extremities, of which the circulation is apt to be more languidly and imperfectly performed, from the degree of resistance presented by the force of gravity to the return of the blood to the heart, calling, moreover, so much of the moving apparatus of the body into reciprocal and balanced action; flexor and extensor muscles being correspondingly exercised. Walking is undoubtedly the best of all exercises for the purpose of health, independently of its secondary, and by no means little useful effect, of carrying the respiratory organs into the freer and purer air, and exposing the system to the extraordinary and (at least in the colder and temperate countries of the earth) healthful influence of the direct rays of the sun.

The degree of the exercise must, of course, vary with the age, con-

dition, and habits of the individual; but the degree of exercise that is in most cases serviceable, is much underrated. Two miles a day is the minimum distance which a person of moderate health and strength ought to walk. If the powers of the system increase, or are stronger to begin with, the minimum ought to be four miles. The object should be, in most cases, to walk four miles in an hour; and the invalid, beginning, perhaps, by walking a mile, or a mile and a half, in an hour, might *gradually* increase his rate of walking, until he had accomplished his end.

Quick walking calls more muscles into action than slow walking does, and is, therefore, better. The muscles of the back and trunk, neck and arms, are comparatively very little used in slow walking. A person can hardly walk quickly without using them to a very considerable degree. It is a maxim so sound and important as to deserve frequent repetition, that the greater the number of the muscles used, the more advantageous will be the exercise.

Muscular exercise is a direct source of pleasure to every one not suffering from diseased action. Every one must have felt this. The effect of using the muscles of voluntary motion, when all the processes of the economy are being justly and healthily performed, is to impart a marked and grateful stimulus to the sentient nerves of the part, and a corresponding and grateful stimulus to the nervous system generally, always ministering indirectly to the happiness of the individual, coloring and brightening the thoughts and feelings.

Man derives an immediate pleasurable sensation from using his voluntary muscles, which not only gives to labor a zest, and even to monotonous movements some degree of enjoyment, but produces a reaction on the mind itself, rewarding a life of virtuous toil with a large degree of physical enjoyment and mental energy, buoyancy and hopeful light-heartedness. However sullen the disposition may be among our griefs at home, exercise in the open air cheers us up; however listless the limbs may have been, sustaining a too heavy heart, they are braced up by exercise, and the lagging gait becomes again buoyant; however perverse the memory, presenting all that is gloomy and agonizing, exercise and change of scene lull it to rest, and the sleep of memory is a day in Paradise to the unhappy. The breathing of cold air, the wind to the face or head, is rest and comfort, which must be felt at such times to be believed. We should, therefore, take exercise in the open air every day. Neither the heart, the stomach, the liver, the bowels, the lungs, the kidneys, the brain, nor the skin, will work on with a healthy action, without walking and exercise every day. How many persons are shut up for days, weeks, or months, without any recreation or exercise! You should remember,

that the mind requires rest as well as the body, and that a lack of exercise produces a train of nervous diseases, and a permanent one is that of dyspepsia.

Exercise is very important in the cure of disease, and if more of it were taken and less medicine used, it would be better for mankind. Although the cure of disease is the principal employment of the physician, yet, if he is an honest man and wishes to do right to his fellow man, his labors are far from ending here. He owes to humanity a nobler and higher duty, far removed from the influence of all selfish motives. It is to apply the principles of Physiology and Hygiene for the prevention of disease, and the removal of its causes, in other words, to be honest, and advise exercise and temperance, with the use of as little medicine as possible.

Bodily exercise is one of the most important means provided by nature for the maintenance of health, and, in order to prove the advantages of exercise, we shall show what should be exercised, and the modes by which the object may be accomplished.

The human body is, in reality, a machine, the various parts of which are beautifully adapted to each other, so that if one suffer all must suffer. The bones and muscles are the parts on which motion most depends. There are four hundred muscles in the body, each performing a specific duty. They assist the tendons in keeping the bones in their places, and put them in motion. Whether we run, walk, or sit, or stoop, bend the head, arm, or leg, or chew food, we may be said to open and shut a number of hinges, or ball and socket joints. It is a provision of nature that, to a certain extent, the more the muscles are exercised, the stronger do they become; hence, mechanics, laborers, farmers, and others, are stronger and more muscular than those whose lives are passed in easy, light, and professional duties. Beside strengthening the limbs, muscular exercise has a most beneficial influence on the circulation of the blood and on respiration. The larger blood-vessels are generally placed deep among the muscles, consequently when the latter are put into motion, the blood is driven through the arteries and the veins with much greater rapidity than when there is no exercise; it is more completely purified, as the action of the insensible perspiration is promoted, which relieves the blood of many matters taken up in its passage through the system, and thus diffuses a feeling of lightness and cheerfulness over the body and mind.

Recreation should be taken which will exercise *all* the muscles. Most of our city employments compel the workers to stand or sit in unnatural positions, using only a few of their muscles, while the others remain comparatively inactive. Tailors, sawyers, shoemakers,

engravers, watchmakers, and many others, such as cotton-spinners, dress-makers, present either awkward movements in limbs or eyes, or are sickly or sallow-looking. Such parties are commonly affected with indigestion, giddiness, headache, or diarrhea. Merchants, storekeepers, lawyers, writers, etc., pass weeks without exercise in the open air, and when opportunity offers, they have lost the inclination. These parties suffer from indigestion, costiveness, cancer of stomach and stagnant circulation of the blood and all its attendant maladies Now there is no remedy for the evils referred to, but taking as much bodily exercise and out-door recreation as possible. It is quite a mistake to consider the labor of the day as equivalent to exercise. Work, *of any kind*, is a mere routine process, carried on with but little variety of circumstances, and a mere change of scene and air is beneficial. To derive the greatest amount of benefit from exercise, it should be combined with amusement, and thus a botanic and rural hunt is both pleasurable and recreative. If this important fact were borne in mind by parents, teachers, and employers, much fewer would be the victims to licentiousness, drunkenness, and disease. Athletic sports and out-door exercise, of every description, are no less conducive to the morals and happiness, than they are necessary to the perfect health of the young of both sexes. Wherever there is physical depression, there *must* be a disposition to resort to injurious mental, moral, or physical stimulants.

If your business confine you from eight till eight, or six till six, there is still time left before and afterward. Have that to yourself, and spend it in walking in the air, and where you can get as far from town or narrow streets as possible.

The pale face, bloodless lips, and sunken eyes of many a young maiden also might be restored to roseate health, by an hour or two's morning walk; and how it behooves fathers and mothers to insist upon their daughters, that need it, doing this, if the young ladies have no faith in the means themselves!

Our time should be thus distributed: *Eight hours' rest, ten hours' application to our engagements, studies, worldly duties, etc., and the remaining six to health and recreation.*

This is a good division where practicable. The flesh-brush, horse-hair gloves, soft and hard brushes, a good coarse towel to rub the body with, or friction of the same with the uncovered hand, are severally recommended. I am a believer in the usefulness of each variety; but I give preference to the latter, the use of the hand; and I advise its application, local and general. Friction of the stomach and belly, in cases of torpid liver, distended bowels, or a morbidly irritable stomach, is of great service. It will not, however,

suffice merely to rub the hand over the belly half a dozen times. The bowels, liver, and stomach, may be regularly kneaded many times every day; the easiest times certainly are before rising and on going to bed; but the best time is between meals, when the food is all but digested. In young and delicate persons, friction of the entire body is highly serviceable, and it is no bad additional morning and evening amusement, for an adult to use the "*hair-brush*," or the "flesh-brush," or the hand, which is the best, over legs, arms, and the entire body. The advantages of this process are, that it can be done without assistance; but with elderly and infirm people a rubber or brush is indispensable.

The result will be that all the digestive organs will be excited into something like action. Where exercise is forbidden, by involuntary confinement or other causes, friction supplies its place; but it must be continued all the year round, and should be persevered in night and morning, from five to ten minutes, more or less, each time. The stomach receives thereby a glow which diffuses itself over the entire abdomen; and I have known cases of constipation, or costiveness, most agreeably relieved by these.

The use of dumb-bells is salutary, lifting light weights, suspending the body by the hands, swinging, skipping, etc.

In short, whether you be man or woman, boy or maiden, old or young, move about and take exercise in the best way you can, and as much "unhoused" as possible. Exercise is positively a virtue; and "virtue is," as the school-boy's copy-book has it, "its own reward."

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## EXERCISE ON HORSEBACK.

NOTHING can exceed the value of this exercise. Nature made man to be moving, as birds are made to fly; and it is unnatural not to use the powers we are supplied with. Walking is preferable to any other action except riding on horseback, where every muscle is brought into play. In consequence, the blood circulates with greater force and rapidity; and so long as we do not excite the same too powerfully, so long may we walk and move about, short of fatigue. Horse exercise is sanitary and recreative. Healthy, from securing thereby abundance of exercise—getting over distances, and far into the country; procuring thus fresh air and mental occupation, and of an agreeable kind. It strongly behooves all dyspeptics, to whom time is an object, and who, beside, may not be strong enough to walk two or three miles, to exercise upon horseback daily. The anxious man may plead expense

as a hindrance; but surely the hiring might be substituted in that case for purchasing; more, also, is made of the latter than need be. Seventy-five or one hundred dollars will be begrudged for a horse; whereas, the same money will be spent in a feast, or parted with in an incautious credit, or laid out for some little unnecessary extravagance. Many a man has to reflect, that it would have been better for him to have bought his horse, than to have done so and so with his money.

Where circumstances will not permit you to ride on horseback, and walking is the only means of exercise which you possess, pray, my friend, be you invalid or otherwise, do not *stick* in-doors all day, but make an effort and get over, by gentle, or brisker efforts, some two or three miles a day.

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## BICYCLE EXERCISE.

Perhaps no mode of exercise is more beneficial, when moderately indulged in, than bicycling. It calls into action many sets of muscles and keeps the mind more or less active. But no form of exercise is more readily carried to excess, the results then being injurious rather than beneficial.

Long continuous rides and prolonged efforts at fast riding are almost invariably injurious.

Each individual must determine for himself how much of this exercise is short of excess. It should at least cease when one commences to feel tired or fatigued.

# HINTS FOR THE SICK ROOM.

We are not advocates for imposing on the sick under the pretense of thereby helping them to recover. Deception, however skillful, is liable to discovery, and, when once detected, its perpetrator forfeits all claims to confidence. By raising hopes where the speedy result shows that there existed no ground for them, we generally deprive ourselves of the power, forever after, of inspiring confidence in those cases where we have not the least suspicion of danger. But, by terrifying the imagination of the sick, we create danger where none had previously existed; by some treacherous logic to argue an individual into illness, or, when a trifling ailment is present, to aggravate it into a serious malady, by representing it as already such, is what we would most strenuously urge all who are called upon to minister to those of feeble health, or to surround the bed of sickness, carefully to guard against. Let the expression of gloom be banished from the face of the attendant; let the language of cheerfulness and of comfort dwell upon the tongue; but, above all, guard the sick from the melancholy foreboding and gloomy predictions of indiscreet friends and tattling neighbors, that this one was likely to die, or that one was similarly attacked, and that the case was considered doubtful, etc., and all such harassing and depressing news, calculated to depress the mind and shock the nervous system.

It is highly important that every cause of fear should be removed from the minds of the sick, and to encourage them with hopes of recovery. This is well understood by every experienced physician. A fearful and desponding state of mind, will often render unmanageable, or even fatal, a slight affection, while a calm and buoyant disposition has frequently carried a patient through a serious attack, during which his life was placed in great danger. In all difficult and dangerous complaints, the person who has the least fear of dying, has invariably the fairest chance of surviving. Men and women of a desponding temperament are very apt, in critical situations, to be overwhelmed by their fears. One circumstance which may tend to protract, year after year, the life of consumptive patients, is, that they, in general, either do not expect a fatal event, or wait for it with an exemplary and enviable resignation. This interesting and, for the most part, amiable class of patients excite the sympathy of others, in proportion as they appear to be divested of anxiety about themselves

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# SECTION I.

## DISEASES OF THE DIGESTIVE SYSTEM.

### DISEASES OF THE MOUTH AND THROAT.

### STOMATITIS—INFLAMMATION OF THE MOUTH—CANKER.

THIS condition is usually the effect of digestive disorders, or lack of attention to the mouth and teeth.

Small sores or ulcers make their appearance on the mucous membranes of the tongue, gums, or cheeks. They have a pearly white punched out appearance, and are quite painful. In nursing mothers they sometimes become quite large and troublesome.

TREATMENT.—First of all the bowels should be attended to, the diet should be light, nutritious, and of a readily digestible character. Each separate ulcer should be touched with stick Nitrate of Silver, or with Alum. A mouth wash of Potassium Chlorate or Borax, or any mild alkaline antiseptic, should be used.

THRUSH is another form of Inflammation of the Mouth, usually occurring in infants and caused by a living fungus, growing in the mucous membrane.

TREATMENT.—Mouth-washes, especially one of Bicarbonate of Soda, are valuable; but the general condition of the patient must be attended to.

### TONSILITIS.

INFLAMMATION OF THE TONSILS is usually caused by exposure to wet and cold. It is sometimes associated with rheumatism. Sometimes it seems to be contagious, one member after another of a family having it. It usually begins with a chill and fever, the fever becoming quite high. The throat becomes sore, and there is difficulty in swallowing. Examination of the throat shows red and swollen tonsils, sometimes with matter-like material upon them.

TREATMENT.—Cold cloths around the outside of the neck and bits of ice to swallow are pleasing and of great service. The finger-tip may be moistened and then dipped into Bicarbonate of Soda, which is then applied to the tonsil. This should be repeated every hour. The Soda should be rubbed over the entire surface. Mouth-washes should be freely used. It may be well freely to open the bowels with a dose of Salts. Tincture of Aconite, *cautiously given*, is of value when the fever is high. This is,

however, a dangerous drug in careless hands. Various gargles may be tried, such as a dram of Tincture of Iron to an ounce of water and Glycerine in equal parts. Plain Salt Water makes a good gargle.

## QUINSY—SUPPURATIVE TONSILITIS.

In this disease abscesses form in the Tonsils, the temperature is very high, the pulse very rapid, and the patient quickly becomes exhausted. There is soreness and dryness of the throat, with pain on swallowing. One or both sides may be affected. The swelling is great, the tonsils are red, the swelling and redness extending to surrounding parts. Sometimes the patient is unable to open his mouth. In two or three days the tonsil becomes soft, and if not opened bursts into the mouth, discharging large quantities of matter and giving great relief.

Treatment.—In this form of Tonsilitis, poultices and hot applications are far pleasanter than cold, also hastening the inflammation and bringing relief sooner. As soon as the tonsil becomes at all soft, it should be opened. This should be undertaken only by a physician, as a large artery lies very close to the tonsil.

The patient should be put to bed at once, when the swelling first commences. The diet is necessarily liquid. The remainder of the treatment should be the same as in simple Tonsilitis. Tonics should be given afterwards.

## PHARYNGITIS—SORE THROAT.

This is due to the same causes as produce Tonsilitis, the two conditions often being present at the same time. In Pharyngitis, the inflammation is at the back of the mouth. There is usually pain upon swallowing, and a dry, tickling sensation in the throat, with a constant desire to hawk and cough.

Treatment.—The treatment is much the same as in Tonsilitis. The difficulties of applying drugs directly to the pharynx are overcome by the use of gargles, or of a spray from an atomizer.

Tonsilitis and Pharyngitis should be cared for at once. They should not be allowed to run along without attention, as the conditions readily become chronic, and are then much more difficult to cure.

## ULCERATION OF THE PHARYNX.

Ulcers of the Pharynx occur as manifestations of Syphilis, Tuberculosis, Chronic Catarrh, Cancer, and in connection with some of the acute fevers, especially Typhoid.

The treatment of these ulcers consists in local cleanliness, using some of the previously mentioned mouth-washes, and the general treatment

appropriate for the diseases which cause them, and given where those diseases are described. For example, Syphilitic Ulcers should indicate general syphilitic treatment, described under the subject Syphilis.

## ADENOIDS AND CHRONIC TONSILITIS.

This is a chronic disease occurring oftenest in youth from fifteen to twenty years of age. It is characterized by enlargement of the tonsils and of the mucous membrane behind the soft palate.

Symptoms.— The important symptom, and one which is characteristic, is mouth-breathing. At first, this usually occurs only at night, later it is continuous and causes a deformity of the face, the upper lip being shortened, and the outline being "peaked." There is usually a vacant look upon the youth's features. Physical and mental development are often interfered with. Usually the disease can be cured entirely by a simple operation and the use of tonics.

The Œsophagus or Gullet is not often diseased, but when it is, treatment as a rule is not very effectual. Cancer of the Œsophagus is well-nigh incurable, and fortunately is very, very rare. It runs a rapid course, causes obstruction, and the patient dies of starvation. Such a termination can be prevented only by making an opening into the stomach, by means of a surgical operation, and feeding the unfortunate one through this opening. Such an operation, however, relieves only for a short time the suffering, which is finally terminated by death.

Spasmodic Stricture.— This condition occurs occasionally in some nervous people. There is some obstruction to the passage of food, but liquids can usually be swallowed. The condition is seldom serious.

# DISEASES OF THE STOMACH.

## INFLAMMATION OF THE STOMACH—GASTRITIS.

Inflammation of the Stomach does not occur very often as an independent or primary affection, but is usually the result of or connected with some other disease.

Causes.— Caustic and irritating substances taken into the stomach. The corrosive mineral poisons, and some vegetable poisons, often prove fatal, by causing inflammation. The habitual use of alcoholic drinks very often produces the disease, and where there is a predisposition to it, even eating to excess. Drinking large quantities of cold water, is also among the causes.

It is very liable to occur in the course of some fevers, especially Bilious and Yellow Fevers, and sometimes during the Small-pox and Measles.

SYMPTOMS.— In severe cases there is a burning pain in the stomach, with constant nausea and vomiting, and great desire for cold drinks. The pain is increased by pressure on the stomach, and by a deep inspiration. The patient cannot bear warm drinks — they are instantly thrown up; and even cold water, if much is taken, soon produces distress, by distending the stomach.

The tongue is either red at the tip and edges, with a whitish fur in the middle, or is red all over.

The bowels are always constipated, unless they are also inflamed.

The pulse is frequent, small, and corded; breathing short and hurried; skin hot and dry, and the urine high-colored.

The patient prefers to lie on his back, with his legs drawn up; is low spirited, restless, has a feeling of extreme debility, with an expression of countenance indicating anxiety and distress.

If the disease continues to advance and grow worse, the tongue becomes smooth, red, and dry; the skin becomes cool and pale; pulse more frequent, feeble, and thread-like; the body becomes much emaciated; debility and restlessness increase, and delirium sets in.

Hiccough, vomiting of dark-colored matter, cold extremities, or a complete cessation of pain, without improvement in other respects, are to be regarded as fatal symptoms.

In the milder forms of the disease, of course the symptoms will be of a milder character also. Instead of severe burning pain, there may be but a feeling of unusual warmth and constriction in the stomach, and instead of incessant vomiting, but a slight nausea, and so on.

The disease varies in duration from two to six weeks, and may then subside into the chronic form. Milder cases generally soon yield to proper treatment; but if neglected, may run on for weeks, and then terminate in a lasting chronic disease.

TREATMENT.— Here is a case in which it will not do to give emetics. Everything calculated to irritate the stomach, whether food, drink, or medicine, must be withheld.

The bowels must be opened, and if it cannot be done by giving cathartics, it must be done by injections. Oily substances will generally be retained. Equal parts of Castor Oil and Sweet Oil, with a portion of Magnesia, can be given in tablespoonful doses, repeated hourly till they operate, or five or six doses are taken. A good pill of Aloin, Belladona, and Strychnine may be be obtained at most drug-stores, and will be found very serviceable.

Apply a large Mustard Plaster over the stomach, until a powerful impression is produced. It is well to make use of injections, and it may be well to give from an eighth to a fourth of a grain of Morphine occasionally —not oftener than once in two hours.

But you must rely principally upon external applications. After the Mustard has been taken off, apply constantly over the stomach flannel

cloths, dipped in a hot infusion of hops boiled in vinegar and water, or in hot water alone. Continue this for hours. Bathe the feet and legs in warm lye water, and apply a hot-water bottle to the patient in bed. Repeat the Mustard Plaster occasionally

Give mucilaginous drinks, as Gum Arabic Water, and infusion of Slippery Elm, or Marsh-mallow, cold, and a little Lemonade.

Chronic Form.—When this disease becomes chronic, the digestion will be bad, with sour stomach, flatulency, heaviness and oppression after eating, belchings, and more or less pain and soreness in the walls of the stomach. The stomach seems to be tense, and sore to the touch; the soreness is usually confined to one spot, and is of a stinging character. The appetite is more or less impaired, and there is often nausea. The bowels are generally very costive; but sometimes a mucous diarrhea occurs. Ardent spirits, or stimulants of any kind, taken into the stomach, produce a burning sensation, and also a redness on the surface, especially the face. The tongue is usually clean, or a brown fur in the middle, smooth, and of a bright red, with pimples on it somewhat like the granulations of the strawberry.

Chronic inflammation of the stomach usually results from the acute form; though it is sometimes chronic from the start, and often results from the use of liquors and other stimulants.

Treatment.—In the treatment of this form of the disease, almost every thing depends upon proper diet. Nothing but the blandest and least irritating diet should be used. If the disease borders on the acute form, with slight feverish symptoms, mucilaginous articles, as Tapioca, Sago, Arrow Root, Gum Arabic, and Elm Bark, and decoction of Barley, should be used. If there is no fever, and not much debility, a more nutritious diet may be used, as Boiled Rice, Stale Bread, Crackers, Mush and Milk, and Gruels. Milk is an excellent thing, and cases have been cured, by living for a while on bread and milk alone. The addition of a little lime-water makes it still better. Alcoholic and stimulating drinks, coffee, and the like, are to be avoided.

Costiveness must be prevented or overcome by the use of laxative and mild cathartics. This may often be done by the use of bread made of unbolted flour.

An irritating plaster worn over the sore part of the stomach will also do good.

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## BLEEDING FROM THE STOMACH—HÆMATEMESIS.

This disease is generally known as vomiting of blood, and consists in a discharge of blood by the mouth, usually in considerable quantities, attended with vomiting. The vomited blood in appearance resembles coffee-grounds, rather than blood.

Causes.—It may be caused by blows on the region of the stomach, or anything that will produce too great a determination of blood to that

organ. It may also arise from ulceration of the stomach. Most usually, perhaps, it arises from debility and relaxation of the blood-vessels of the inner coat of the stomach. It is sometimes brought on by suppression of the Menses. It is also a symptom of cancer of the stomach.

Bleeding from the Stomach may be distinguished from that of the Lungs by the discharge being preceded, usually, by a feeling of weight, pain, and anxiety, in the stomach, and unaccompanied with cough. The blood is discharged by vomiting, and in a greater quantity than when it comes from the lungs. It is also of a darker color, and is usually more or less mixed with the ingesta or food, while blood from the Lungs is mixed with bubbles of air and is lighter.

TREATMENT.—If the affection seems to be but slight, a few doses of common Table Salt and Vinegar may be sufficient to suppress it. Alum Water may also be given. The patient should be kept quietly in bed and allowed to swallow small particles of ice. It is well to give a quarter of a grain of Morphine to an adult.

If it arise from suppressed Menstruation, measures must be taken to restore that discharge. Bathe the feet and promote perspiration, so as to divert the blood from the stomach to the surface and extremities.

Bleeding from the stomach is usually due to some serious condition and should be attended to at once.

## HEARTBURN.

WHAT is commonly called Heartburn, is nothing more or less than Sour Stomach, or acidity of the stomach. It is usually a concomitant of Dyspepsia or Indigestion, frequently caused, however, by the use of tobacco, spirituous liquors, and want of proper exercise. Temporary relief may generally be had by the use of some alkali or antacid—as a teaspoonful of Bicarbonate of Soda in a little water, or half as much Saleratus dissolved in half a teacupful of water. Great care should be taken to avoid the use of these articles continuously, or even frequently, as they tend to irritate the coats of the stomach. Avoid the causes that lead to Heartburn. Magnesia is a very good remedy; the dose may be 1, 2, or 3 teaspoonfuls, in a tumbler of water. Soda Mint Tablets, now obtained at any drug-store, will often relieve the condition. If caused by the use of Tobacco, leave off the filthy weed.

Women are often troubled with Heartburn and Sour Belching during pregnancy. In such cases it is an attendant symptom, which can only be temporarily relieved while the cause exists. The above alkalies will generally afford relief here also, especially the Magnesia; but sometimes, as strange as it may seem, acids do the most good—such as a weak solution of Tartaric, Lemon, or Citric Acid, or a few drops of Elixir Vitriol, in a little water, just enough to make it pleasantly sour; or Lemonade will answer the purpose.

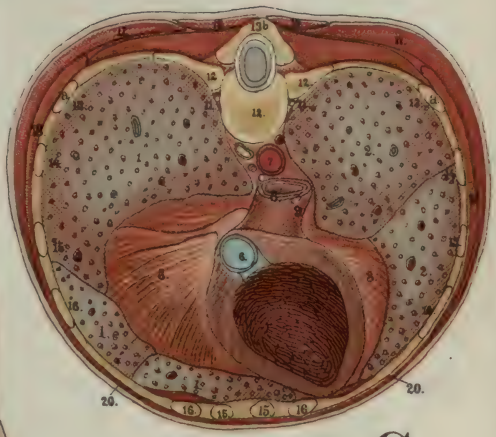
# THE CHEST AND ABDOMINAL CAVITY.

## C—Transverse section through the chest, when frozen. (Close to the diaphragm).

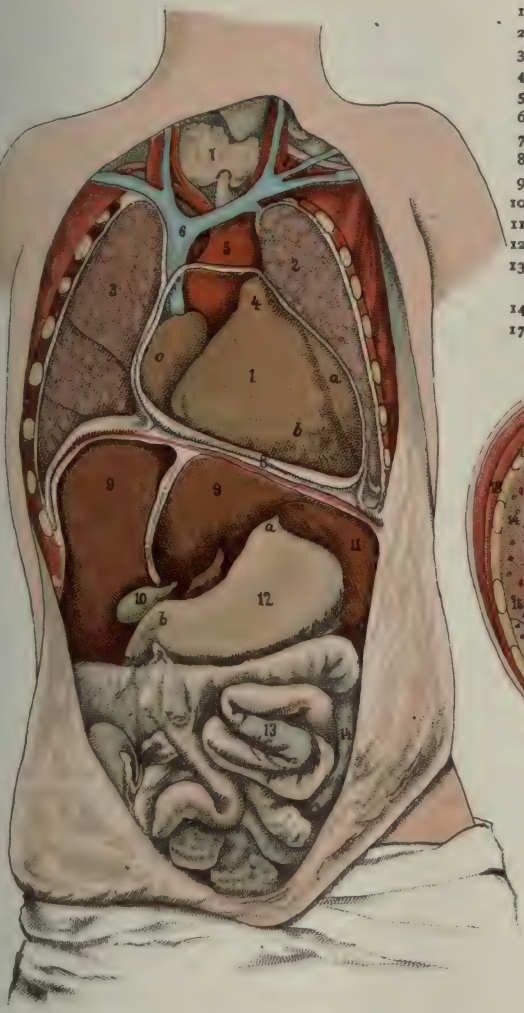
1. Right lung, as seen from above.
2. Left lung.
3. The diaphragm.
4. The lower part (apex) of the heart.
5. The pericardium.
6. Inferior vena cava.
7. The aorta.
8. The oesophagus.
9. Nerves of the lungs and the stomach.
10. The thoracic duct.
11. The sympathetic nerve.
12. The ninth thoracic vertebra and its ribs.
13. The eighth rib (*a*) and the acantha (*b*) of the eighth vertebra.

14–16. Seventh, sixth and fifth ribs.

17–20. Muscles divided by cutting.



C.



A.

## A—Position of the thoracic and abdominal viscera. (Front view.)

1. The heart.
   - *a*. Visible part of left ventricle.
   - *b*. Right ventricle.
   - *c*. Right auricle directed to the left.
2. Left lung.
3. Right lung.
4. The pulmonary artery.
5. The arch of the aorta.
6. Superior vena cava.
7. The thyroid gland.
8. The diaphragm, pressed upwards on its left side by the liver.
9. The liver.
10. The gall bladder.
11. The spleen.
12. The stomach.
    - *a*. Orifice.
    - *b*. Pylorus.
13. The convolutions of the small intestine.
14. Descending colon.

Sugar, sweets, and saccharine vegetables, such as easily turn sour in the stomach, should be avoided, and the patient should take free exercise daily, and make use of a plain, light, nourishing, and easily digested diet. And if Dyspepsia is the cause of the difficulty, the following powder may be used:

Take pulverized Rhubarb and Supercarbonate of Soda, of each, 1 ounce; pulverized Golden Seal and Peruvian Bark, of each, ½ an ounce; pulverized Cloves and Ginger, of each, 2 drams. Mix, and take a teaspoonful after each meal, in a little water or milk.

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## GASTRIC ULCER—ULCER OF THE STOMACH.

This is a condition in which ulcers form in the stomach wall. The causes leading to the condition, I confess, are not well understood. It occurs more often in women than in men; usually between the ages of twenty and sixty. Impoverished condition of the blood has more to do with the cause than any other one thing. Ulcer of the Stomach often occurs in women suffering from menstrual disorders, and in people who are dyspeptics; but as these two conditions cause impoverishment of the blood, their relation to the cause of ulcers is probably thus explained.

The ulcers look like irregularly punched out places in the mucous membrane of the stomach, varying in size from a ten cent piece to a dollar. Sometimes they even penetrate deeper than the mucous membrane, extending into the muscular layers or even perforating the stomach wall. If perforation occurs, the contents of the stomach may escape into the abdominal cavity; this would cause a peritonitis which usually terminates in death.

Symptoms.—Vomiting blood, usually quite bright and in considerable quantities, is a prominent symptom of Ulcer of the Stomach. There is always pain in association with Gastric Ulcer. This is of variable character; the time of occurrence and duration also varies. It may be felt as a gnawing or burning pain, most marked when the stomach is empty, and relieved by eating. Sometimes it is of a very intense character, felt not only in the stomach, but also in the back and shoulders. These intense attacks are usually induced by the taking of food and follow this act at intervals varying from ten minutes to two hours. Pressure over the stomach often gives relief to the pain. Usually the patient is sensitive to pressure over the stomach, especially at a point an inch or two below the breast-bone. These symptoms in association with Dyspepsia are clear evidences of Ulcer of the Stomach.

Treatment.—Absolute rest in bed is almost essential. The diet is very important, and should consist chiefly of liquids,—milk, buttermilk, peptonized gruels, and broths. The stomach may be so sensitive as to require washing before any nourishment can be tolerated. Sometimes the

stomach will not retain food at all; then it becomes necessary to keep the patient's strength up by injecting peptonized foods into the rectum — terminal of the bowel. This part of the bowel is able to absorb sufficient food to meet the demands of the body for many days — until the stomach becomes less sensitive.

Medicines have little effect upon the course of Gastric Ulcer; time and quiet are the great remedies. The intense pain must be relieved with Morphine in quarter-grain doses. The great sensitiveness of the stomach may be temporarily relieved by a powder composed of Subnitrate of Bismuth $\frac{1}{2}$ grain, Cerium Oxalate $\frac{1}{2}$ grain, and Cocaine $\frac{1}{12}$ grain. This powder may be given before each feeding. In case of bleeding, the patient should be made as quiet as possible, using Morphine; and ice should be applied over the stomach. Three months are required to effect a cure.

## CANCER OF THE STOMACH.

Cancer of the Stomach is a rather rare disease, occurring between the ages of thirty and sixty,— usually between forty and fifty. The cause is unknown.

Symptoms.—The patient gradually commences to lose flesh, his health fails him, dyspeptic symptoms make their appearance, and vomiting occurs. Later the vomited material may look like coffee-grounds (partially digested blood). Nothing checks the progress of the disease. Death usually ends the sufferings within two years. It is often difficult to distinguish between Cancer, Ulcer, and Dyspepsia, so that reputed cases of cure of Cancer of the Stomach may really not have been cases of cancer at all.

Treatment.— One successful case of entire removal of the stomach for cancer has been recorded; but this is scarcely practicable. Operations are done, however, which relieve the patients at times, and which are justifiable. The medical treatment should be towards relieving the patient. Washing the stomach is often successful towards this end. When there is no doubt about the presence of Cancer, Morphine should be used as often as there is pain. It may be necessary to give it by means of the hypodermic syringe.

## DILATATION OF THE STOMACH.

Dilatation of the Stomach is a condition in which this organ is stretched so that its capacity is increased beyond the normal capacity— about a quart and a half. It may become so stretched as to have a capacity of one or two or more gallons.

Causes.—Anything which causes an obstruction to the outlet of the stomach may induce Dilatation. Cancer at the outlet (called Cancer of

the Pylorus), a healed ulcer, or congestion may cause such an obstruction. Overloading and distending the stomach with food and drink induce the condition, if too often indulged in.

Symptoms.—Dyspepsia is present in most cases. Belching, with a bitter taste in the mouth, is an unpleasant symptom. Vomiting large quantities of fluid and partially digested food every two or three days is very characteristic. Constipation, scanty urine, and dryness of the skin usually accompany Dilatation of the Stomach. In milder forms of dilatation, the gurgling sound in the stomach and the belching was called "Water-Brash."

Treatment.—In mild cases, the treatment should be towards the dyspepsia. Washing the stomach is valuable. The diet should be restricted to small quantities of readily-digested meats, gruels, broths, and milk; vegetables, fat, and sugar should be avoided as much as possible.

If improvement does not follow this treatment, a surgical operation may be required. If it is due to cancer little can be done.

## GASTRALGIA—PAIN IN THE STOMACH.

There are some nervous conditions in which there is pain in the stomach, with various symptoms of Dyspepsia, Ulcer, and Cancer, which are puzzling and troublesome. The general treatment for nervousness is indicated.

## INFLAMMATION OF THE BOWELS.

Inflammation of the Bowels is characterized by acute pains in the abdomen, costiveness, more or less fever, and sometimes vomiting.

Causes.—The disease may be caused by obstinate and long-continued costiveness, by wounds and injuries to the intestines, by severe colic, by eating unripe fruit, and by exposure of the lower extremities and abdomen to cold.

Symptoms.—Burning and acute pain in the bowels, which shoots round the navel; usually obstinate costiveness; vomiting of bilious or dark-colored matter; urine high-colored; pulse quick, hard, and contracted; some fever, thirst, and great loss of strength. The patient is constantly belching up wind.

Treatment.—Soak the feet in warm lye-water—apply warm fomentations over the abdomen, flannel cloths dipped in hot lye-water—and give a large tablespoonful of cold-pressed Castor Oil, with half as much Olive Oil, and half a teaspoonful of Spirits of Turpentine, and repeat it every two hours till an operation on the bowels is effected. After the second or third dose is taken, it should be aided by an injection of the same with a little warm Milk and Molasses, and a teaspoonful of Salt dissolved in it. If

these means, after repeated trials, do not succeed, give more powerful injections; an ounce of Epsom Salts, an ounce of Glycerine and a pint of hot Water; give the whole warm, with a large syringe, and have it retained awhile by external pressure.

In severe cases, it is good treatment to apply to the abdomen hot fomentations, a hot water bottle, or hot fomentations with a teaspoonful of turpentine, to be changed and repeated often.

If the costiveness cannot be overcome, put the patient in a warm bath for half-an-hour.

Occasionally leave off the hot fomentations, and apply a large Mustard Plaster over the abdomen.

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## DYSPEPSIA—CHRONIC GASTRITIS.

THE greater number of persons afflicted with Dyspepsia are to be found among care-worn speculators, stock-brokers, merchants, and ardent students, with those confined to sedentary habits, who neglect or have no opportunity to take sufficient exercise, and thousands are afflicted with this disease from the too constant use of medicines, and whose nervous systems are easily excited; those also who are addicted to the use of stimulating liquors, improper food, tobacco, etc., and not unfrequently those whose nervous systems have, by injudicious education, been too greatly developed, and rendered readily excitable.

There can be no doubt that sedentary habits concur with mental excitement in producing this disease, but as long as excessive mental excitement is kept up, but little relief can be obtained by medicine, or the strictest attention to diet. Absence from mental toil, cheerful company, exercise, a country excursion, and relaxation of mind, will soon accomplish a cure, when all the prescriptions of physicians and medicines in the world would prove unsuccessful without it.

The effect of mental excitement, or disquietude, in producing Dyspepsia, is greater than is generally supposed in this country. It is well known that persons in good health, of sound digestive organs, who take plenty of exercise, and are free from anxiety of mind, may eat almost any thing, and in quantities which would do serious injury under different circumstances.

Dr. Beaumont, Surgeon of the United States Army, as our readers will perhaps recollect, was the medical man under whose care fell the case of Alexis St. Martin, a young Canadian, who received a gunshot wound in the left side, in consequence of which was formed a permanent opening into the stomach, affording a most admirable case, and the only one ever known, for examining the working and whole pro-

cess of the digestion of the stomach. I give you, in a clear and comprehensive manner, in language so perfectly familiar that it will be readily understood, the above-named case. With a zeal most honorable to him, Dr. Beaumont took advantage of the chance thus held out, and at an expense to his private fortune of above seven hundred pounds, retained the man beside him, for the purpose of prosecuting a series of experiments on the exposed organ of digestion, which prove the perfect identity of digestion with chemical solution. The gastric juice, removed and put into a phial, was just as successful in reducing food to chyle, as when left to operate in the stomach. For as digestion consists essentially in a solution of the aliment in gastric juice, it follows that whatever promotes the free and healthy secretion of that juice, will favor digestion; and, on the contrary, whatever impedes or impairs it, will impair or impede the digestive process. It thus becomes important to ascertain the conditions under which it is secreted most freely and healthily.

The circumstances under which Dr. Beaumont obtained gastric juice, of healthy quality and in large quantity, from St. Martin's stomach, and which consequently may be considered as most favorable to digestion, were moderate and regular living, due exercise in the open air, cheerful activity of mind and feeling, and dry, bracing weather. After excesses, on the contrary, in eating or drinking, bodily fatigue, passionate excitement, temporary irritation of disease, or in damp weather, the secretion was generally impaired both in quality and quantity.

If, as there is every reason to believe, the gastric juice, or secretion, is naturally proportioned to the real wants of the system at the time, it is very easy to understand why it is most copious after moderate and regular living, and least so after intemperance.

When a moderate meal is eaten, a sufficiency of juice is speedily secreted for its solution, digestion goes on rapidly, the coats of the stomach retain their usual healthy appearance, and after an interval of repose, a fresh supply of juice is ready to be poured out when wanted for the digestion of the succeeding meal. Of these facts Dr. Beaumont had ocular evidence. But when food is eaten to excess, the portion left undissolved by the gastric juice begins to ferment, and by its physical and chemical properties acts as a local irritant, just as any foreign body would do, and produces an inflammatory action on the inner coats of the stomach, which necessarily interferes with the gastric secretion, and thereby impairs the power of digestion.

From the relation which Dr. B. believes to subsist between the quantity of gastric juice, which the stomach can secrete, and the actual wants of the system at the time, it follows that the power of digestion

varies considerably under different circumstances, even in the same individual. In youth, for example, and during convalescence from illness, and after much exercise, when copious materials are required for both nutrition and growth, the gastric secretion seems to be very abundant, and hence the vigorous appetite, and easy digestion of early life. But after maturity, when the living fabric is complete in all its parts, and when the restless activity of youth is exchanged for the staid and comparatively sedentary pursuits of middle age, and when, therefore, no such abundance of nutritive materials is required, the secretion of gastric juice is, in all probability, much diminished in quantity, which is the chief cause of the proportionally diminished power of digestion.

Keeping the above relation in view, we ought clearly, on the approach of maturity, to place ourselves in accordance with our altered circumstances, and diminish our quantity of food, more or less, according to circumstances, adapting our mode of living to our sedentary habits, diminishing the quantity of food, in due proportion between supply and expenditure, which alone is compatible with the continuance of health. This precaution is, however, very generally neglected. Retaining a lively sense of the pleasures of a youthful constitution and digestion, the grown man changes his habits, but continues his meals, and when he feels the accumulating weight of excess pressing more and more heavily upon him, instead of taking the hint, and restricting himself to what he requires, he begins to bemoan his weakness of stomach, and to wonder why he, who once never felt that he had a stomach, should now become a martyr to its complaints From an extensive practice, I am confident that a large proportion of the severe dyspeptic cases which occur, in what are considered regular living men, on the approach of manhood, or between twenty and forty years of age, are fairly attributable to this cause, and might be avoided by the exercise of a rational foresight, and I have known several who have suffered severely in this way for years, lament sincerely the ignorance which betrayed them into this error.

There are many persons, no doubt constitutionally, too devoted to intemperance to be corrected by any such considerations; but there are also many misled, less by the force of appetite than by ignorance, who may profit by the remark. The other conditions, most influential in diminishing the secretion of the gastric juice, are bodily fatigue, strong mental emotions, such as anger and febrile excitement. Hence the obvious necessity of avoiding full meals under such circumstances, and never eating a second meal until the stomach has had time to recover from the labor of digesting the one preceding—for it requires an interval of repose just as the muscles do.

In febrile attacks, the coats of the stomach were often observed, by Dr. Beaumont, to present a somewhat dry and inflamed appearance, followed sometimes by an irruption of whitish vesicles. In this state the gastric juice is generally sparingly secreted, and somewhat altered in quality. Hence the impaired power of digestion, and the generally impaired appetite in fever, and the folly of giving solid food, which serves only to increase the irritation and impair still further the already diminished gastric secretions.

In many slight fits of indigestion, appearances of this kind presented themselves, and were easily removed by a short abstinence and a little laxative medicine.

Many persons, who obviously live too freely, protest against the fact, because they feel no immediate inconvenience, either from the quantity of food, or the stimulants in which they habitually indulge, or, in other words, because they experience no pain, sickness, or headache—nothing, perhaps, except slight fullness and oppression, which soon goes off. Observation and facts show, however, that the conclusion drawn is entirely false, and that the real amount of injury is not felt at the moment—merely because, for a wise purpose, nature has deprived us of any consciousness either of the existence or state of the stomach during health. In accordance with this, Dr. Beaumont's experiments prove that extensive erythematic inflammation of the mucous coat of the stomach was of frequent occurrence in St. Martin, especially after excesses in eating and drinking, even when no marked general symptoms were present to indicate its existence. Occasionally febrile heat, nausea, headache, and thirst, were complained of, but not always. Had St. Martin's stomach and its inflamed porches not been visible to the eye, he too might have plead that his temporary excess did him no harm; but when they presented themselves in such legible characters that Dr. Beaumont could not miss observing them, argument and supposition were at an end, and the broad fact could not be denied.

These experiments, made upon himself unintentionally, by St. Martin, occasioned by fits of intemperance, show the effects of ardent spirits upon the coats of the stomach, and afford an instructive lesson, to all who are willing to receive and enforce it, that nature is not to be outraged and its functions disturbed by the use, or rather abuse, of spirituous liquors, or eating to excess, as it must be seen by my readers, to which I invite their attentive consideration.

The very acrid nature of the contents of the stomach, occasionally witnessed during the existence of the eruption, as in the case of St. Martin, is a proof at once of great disturbance in the function, and of the necessity of avoiding every thing but the mildest nourish-

ment, until health is restored. It is quite common, however, for a patient, immediately after complaining of the acrimony of the last meal, to set down to the table and eat as heartily, of all sorts of food, as if the stomach were in perfect health. This case fully and conclusively shows why this can not be done with impunity.

The gastric juice is essential to digestion. It is caused to flow into the stomach as soon as any substance is introduced into that organ, whether it is a piece of leather or a beef-steak. This juice contains an acid, and the more indigestible any article of food is, the greater amount of sourness does the gastric juice contain; hence, when persons eat something that does not agree with them, and is not easily digested, they say it soured on the stomach, or complain of heartburn. The use to make of this is, whatever article of food eaten is followed by sour stomach or heartburn, that article is hard of digestion and ought to be avoided altogether—at least it should be taken in diminished quantity; but do not forget that different stomachs bear different things, and what disagrees with you to-day may agree very well next week or next month, and that the stomach must be humored, however fickle it may seem.

Sometimes, however, shall I not say nearly always, people eat so much that there is not gastric juice or acid enough to digest the food, then it ferments, produces belching, colicky pains, sick stomach, and the like; therefore a mixture of a drop of diluted Hydrochloric Acid and a teaspoonful of essence of Pepsin, which is an excellent artificial gastric juice, will be used to great advantage, especially by those persons known to have weak digestive organs.

The principal and general causes of Dyspepsia, and the whole train of distressing complaints resulting therefrom, are produced from the present fashionable habits of luxury and intemperance, both in eating and drinking, such as spirituous liquors, high-seasoned meats, excessive use of tea and coffee, hot bread, spices, pastry, tobacco, in every form, irregular evacuations, excessive venery, swallowing the food without chewing it sufficiently, overloading the stomach, derangements of the liver and spleen, want of exercise and pure air, the depressing passions, or great anxiety of the mind, and whatever has a tendency to debilitate the lining of the stomach, so as to prevent it from the healthy performance of its functions.

This disease may well be regarded as one of the most distressing with which we can be afflicted; for while it gradually attacks the constitution of the patient, it undermines the enjoyment of all domestic comforts whatever, even changing greatly the *dispositions* of its numerous victims. And it must be borne in mind, that all irregu-

larities of living, will sooner or later destroy the digestive powers; and the further we recede from a state of nature, and the greater the luxuries we indulge in, the further are we from the felicity which springs from the enjoyment of health, and the more do we suffer from the derangement of the stomach. People in cities, whose minds are distracted with a pressure of business, and who are forced to great irregularity in sleep and eating, are peculiarly liable to Dyspepsia. Farmers and their wives and children, who live in the country, who labor daily, never hurry, sleep sound at night, and eat wholesome articles of food, and who drink cold water, or very weak tea and coffee, are seldom affected with it. In the country, milk is the drink of children, instead of tea and coffee, which no doubt contributes greatly to strengthen and fortify the stomach against disease. I have known Dyspepsia to make its appearance among country people, but this disease is very rare with them. It is most generally confined to the inhabitants of towns and cities where luxurious living and sensual pleasures are indulged in, and where irregularities are the cause of this distressing complaint, and often accompanied by diseases of other parts of the system, particularly of the liver and brain, which in turn react upon the stomach, giving rise to an aggravated form of this disease, which, in some instances, ends in an affection of the lungs, cough, and all the symptoms of Hectic Fever. This termination of the disease always makes it of the highest importance to cure it in the early stage, or when it first begins. If taken in season, and properly treated, Dyspepsia is as curable a disease as any there is; but if suffered to go on with little or no attention, and without any alteration of the manner of living, or avoidance of the causes which produce it, there is no disease more difficult to cure.

Symptoms.—The following are the most common and constant symptoms of this complaint, namely: want of appetite, indigestion of the food, and a sensation as of great internal *sinking* and distortion of the stomach, flatulency or wind in the bowels, acid eructations, or throwing up acid water, nausea or sickness of the stomach, and frequently vomiting up your food, pain and not unfrequently spasms extending over the region of the stomach, great depression or lowness of spirits, irritability of temper, very nervous and easily excited, anxiety, whitish or clay-colored evacuations from the bowels or intestines, which are sometimes in a loose or relaxed state, at others in a costive state, not unfrequently afflicted with piles, and discharges of blood from the fundament, alternate flushes of heat and cold, irregular, wandering pains in the back and shoulders, twitching or spasmodic affections of the muscles, nervous twitchings and tremblingly alive all over to every sense of danger, real or imaginary, great restlessness and want of

sleep, sudden startings at the slightest unexpected noise, frequen sighing, a sense of great oppression about the region of the heart with palpitations, skin dry, tongue furred, unpleasant taste in the mouth, offensive breath, yawnings, and uncomfortable feelings, often a giddiness, and noises or singing in the ears, sight frequently obstructed, the memory not so good as formerly, want of resolution, great weakness after any corporeal exertion.

TREATMENT.—In the beginning of Dyspepsia, that is when this complaint makes its first commencement on the system, strengthening medicines should not be used, but after the disease has impaired the general strength, and relaxed or weakened the stomach, it will then be necessary to use them. I have had much experience in this disease, and have found that the acidity and hot belchings may be removed by a gentle emetic of Ipecacuanha, from 5 to 10 or even 20 grains, in a teacupful of warm water is very good. The emetic should be repeated when a small dose has been given, if the first dose does not vomit; but generally the first dose is sufficient. When the operation is over, and the stomach has become quiet, give a gentle purgative, a Seidlitz Powder; but if the bowels are very constipated, or bound, give some more active medicine, as pills of Aloin, Belladonna, and Strychnine. For children a dram of powdered Rhubarb, and the same quantity of calcined Magnesia, divided into four equal parts, one stirred up in syrup and given morning and evening, will effectually relieve the digestive organs from all sourness and wind colics, with which young persons are so much tormented. I have shown you there are two stages of this disease, when all irritation or inflammation has subsided, or, in other words, the complaint has become one of a chronic nature, and requires tonic or strengthening medicines, to improve and strengthen the digestion. In the first stage remove the load or oppression, then improve or strengthen the stomach, or digestive organs. Keep the bowels regular, for they are generally sluggish and costive. A daily habit of attending to the natural calls of the bowels, however feeble the desire, should never be neglected. A long retention of the stools is attended with the same weakening effects as a retention of urine in the bladder, by neglecting to attend regularly to the time that nature dictates.

The use of injections is, in severe cases, or delicate persons, or those of long standing, much better for moving the bowels, than by swallowing daily potions of physic, and, for this purpose, all that is necessary is Glycerine and Warm Water; or Warm Water, in which put a teaspoonful or two of common Salt. Every family should be provided with a fountain-syringe, which can be purchased at any drug or apothecary store, as it saves the taking of a great deal of physic,

prolongs life, and wards off a great many diseases which are brought on by destroying the stomach with active purgative medicines.

In the beginning of the disease, as I have before told you, when the symptoms are mild, there is no necessity for taking a great deal of medicine. Attend to the quantity and quality of your food; avoid all dissipation; secure sound sleep; take plenty of exercise, and take a Soda Powder, two or three times a day, in a tumbler of cold water. This will correct the sourness of the stomach, and if the bowels are costive, or bound up, take a Seidlitz Powder once or twice a day; if much wind, a little Spearmint or Peppermint Tea, drank warm, will relieve you. If the distress is great, from wind or colic, a tea-spoonful of Paregoric, in a little hot water, should be taken. If the suffering arises from the quantity or quality of the food, then take a dose of Salts, or a gentle emetic. But after a fit of indigestion, where the stomach has suffered much from wind, pain, heartburn, and hot, sour eructations, or perhaps sickness and vomiting, then give the stomach rest for twenty-four hours, living on Boiled Rice, Hard Crackers, Rye Bread, and cooling light diet, or such food as may be most suitable to assist the powers of digestion. If there is a constant feeling of soreness and pain at the pit of the stomach, a large blister should be drawn—as small blisters are of no service—and if the pain continues, and no relief is produced from the blister, half a dozen Leeches should be applied to the pit of the stomach, every two or three days, until relief is obtained. If there is a constant costiveness of the bowels, the best medicine is Aloes, unless you have the Piles, then you must not use it, otherwise it is a valuable medicine; one, two, or three pills, as you may require, on going to bed, to open the bowels, and continue to use them for three or four weeks at a time, if the digestive organs are not strengthened before. I have cured many persons with no other than this simple remedy. In bad cases of Dyspepsia, or where this complaint has been of long standing, you will find the following a valuable remedy, for I have used it with great benefit in many difficult cases:

The Oxide of Bismuth, and Aloes, made into pills, with Molasses, or a solution of Gum Arabic. The proportion is one part of the Oxide of Bismuth, and two of Aloes, made into common sized pills. Four of these pills are to be taken every night, on going to bed, until you find improvement in your digestion, or the stomach is strengthened. These pills are greatly celebrated, and sold as a patent medicine for this disease.

The Oxide of Bismuth can be used alone, in powder of 5 grains at a dose, and in cases where a daily use of physic is not needed, it is better to use it in this way, or you may try both to see which is of the greatest benefit.

Rubbing the skin often with a flesh brush, or a coarse towel, is of great benefit in this complaint. It arouses the action of the blood-vessels of the skin, awakens its sensibility, and finally draws to the surface a greater amount of fresh blood, and it will be of great benefit, half an hour before eating, to knead the stomach well, as if you were using your hands in kneading bread; knead up toward the breast bone or use brisk friction with a brush or coarse cloth, over the region of the stomach. This kneading particularly invigorates, promotes insensible perspiration, increases the action of the stomach, and consequently its power of digestion.

Exercise on horseback, riding before breakfast, change of place, travel and amusing scenes, all assist to cure Dyspepsia.

The following bitters will be found very valuable in this disease: Peruvian Bark, 1 ounce; Gentian Root, 1 ounce; Orange Peel, ½ ounce; Coriander Seeds, ½ ounce; bruise these four articles in a mortar, or with any convenient article if you have no mortar, put them into a quart of the best French Brandy, and let it steep for five or six days before you use it. The dose is from 1 teaspoonful to ½ a tablespoonful in a wine-glassful of water, about one hour before meals.

Pills made of Aloes and Myrrh, called the pill *Rufi*, form one of the best pills for the stomach now in use. The Myrrh is slightly stimulating, and very strengthening to the stomach; or you may give the powder of Aloes alone, in a dose of 20 grains, three times a day; or the Sulphate of Iron mixed with Myrrh, in the form of a pill — this is called generally Griffith's Mixture, which has helped many persons afflicted with this disease; and this is the reason why the Mineral Waters which contain Iron are so valuable in Chronic Diseases, or, in plainer language, Dyspepsia of long standing. They are called Chalybeate Springs, and none are superior to the Grayson Springs, of Kentucky, for these waters are extremely suitable to this disease, and many cures have been effected by them.

Bathe the feet at night in warm water at bed-time, and once or twice a week take a bath in pleasantly warm water, rub the body all over well, with a brush or coarse towel, and rub or knead the stomach before going to bed, so as to produce a gentle glow or heat over the whole body. Pure air is of great importance to healthy digestion.

In this disease, a change of air, such as a voyage to sea, bathing in salt water, or a residence for a time near the ocean, has performed the most wonderful and permanent cures. I knew a clergyman of the Presbyterian church, who was so far reduced that he was carried on his bed to the sea-shore, and after remaining there two months, returned home entirely cured. And I confidently believe, if persons afflicted with this complaint, would live exclusively on rice, milk, vegetables, fruit, and hard cold bread, avoiding all dissipation, their health would be restored, and the stomach be entirely renewed.

And in conclusion of this important subject, we must impress upon your minds that Dyspepsia, in its more aggravated form, is a disease which requires, on your part, great patience. Its gradual progress and constant increase require that the means for its removal should be gradual — increasing or diminishing the strength of the remedies as you may find it necessary. In this disease, you must assist nature by giving rest to the stomach, by strengthening it, and by mildly keeping the bowels regular (so as to have a passage once a day is all that is required). No complaint requires more constant attention than Dyspepsia, and not infrequently the most simple remedies cure this disease; for instance, care, prudence, diet, exercise, and change of air, and everything which contributes to the health of body and mind, invigorates and strengthens the stomach.

As the acid in the stomach is usually diminished in quantity in this disease, and as this acid is made from common salt, it is evident that one suffering from Dyspepsia should be very liberal in his use of salt. Sometimes there is a decided craving for salt in this disease; such craving should be satisfied. Then, as it is quite simple, try Halstead's method of curing Dyspepsia, as I have before told you, kneading the stomach with the hand. It removes the torpid state, and has, if properly done, the effect of regulating the bowels. Being very simple and easily put in practice, it may be tried with safety, and to my knowledge with great benefit, for I have used it in many cases. In every form of Dyspepsia, coffee, tea, and hot bread are injurious. Black Tea may be used in small quantities.

In the summer time, the shower-bath is very often used with great benefit, followed immediately by brisk friction with a coarse towel. In some cases, the tepid bath may be occasionally of benefit. Where there exists much pain in the stomach or bowels, flannel dipped in vinegar and squeezed, should be applied over the stomach and belly, and then with a heated smoothing-iron iron over the stomach and belly until the flannel becomes dry which may be repeated as often as the pain returns.

In some cases which have been very obstinate and have resisted all other forms of treatment, I have resorted to washing the stomach, with a tube passed into it by the mouth. The patient readily learns to pass the tube himself, after it has been done once or twice for him. Washing the stomach each morning before breakfast with warm salt or borax water, by this means, sometimes produces wonderful cures.

Sea-bathing, on account of its stimulative and penetrating power, may be placed at the head of those means that regard the care of the skin, and which certainly supplies one of the first wants of the present generation, by opening the pores and thereby reinvigorating the whole nervous system. This bathing is attended with two important advantages. The first is, that besides its great healing power in cases of disease, it may be employed by those who are perfectly well, as the means most agreeable to nature for

strengthening and preserving health. In this respect, it may be compared to bodily exercise, which can remove diseases otherwise incurable, and which may be used also by those who are sound, in order to preserve themselves in that state. The other advantage is the noble, grand, and indescribable prospect of the sea connected with it, and which, on those not acquainted with it, has an effect capable of bracing up the nervous system, and producing a beneficial exaltation of the whole frame. I am fully convinced that the physical effects of sea-bathing must be greatly increased by this impression on the mind, and that a hypochondriac, or nervous person, may be half-cured by residing on the sea-coast for a short time, and enjoying a view of the grand scenes of nature which will there present themselves.

Seafaring men are also peculiarly exempt from Dyspepsia, from their great simplicity of living, united with exercise, good air, and a comparative freedom from the embarrassing cares of city life. All active trades are more favorable to the soundness of the stomach than sedentary employments. The fewer the articles of food we eat, and the greater the uniformity we observe in eating them, the greater will be our chance of escaping this harassing disease.

The human frame is so delicate, that in our state of existence there are few individuals totally exempt from some predisposition to a particular disease, which accompanies them through life, therefore we should strictly attend to this matter in due season, and carefully avoid everything which may produce disease; or, in plainer language, let me say to you that physical peculiarities in the parents are hereditary, and we may trace, in the unconscious infant even, the lines of that care and disease which is ushering the decrepid and dyspeptic parent to the grave. Well may we reflect then how essential to ourselves, and to our posterity, is the preservation of sound health, and a regular course of living.

The constant murmur of the waves of the sea tends to soothe the brain and promote profound sleep. The nervous headache, to which most weakly persons are subject from indigestion, bad blood, or defective circulation, is frequently entirely removed by the refreshing air of the ocean. Walking along the shore of a morning and evening, breathing the pure, fresh air, and bathing in its healthful waters, together with the bright and glittering light reflected from its bosom, is peculiarly calculated to promote cheerfulness, and is very favorable to the action of the heart and nerves of persons in delicate health. And let me, before I conclude this important subject, urge the delicate, and even those in health, to duly consider the benefit to be derived from visiting the sea-coast; the elevating thoughts, the pure air, the boundless prospect, the cheerful sky, all assist, and are more beneficial in producing sound health, than all the medicines that can be administered. Remember what I have before told you, that when the curative powers of nature fail, all medicines are useless.

My own observation during many years' residence near the sea-coast, has assured me that bathing in the sea, and sea-air, are two of the best remedies in all cases of declining health, and have wrought many wonderful cures, imparting new life, and invigorating feelings, and soothing the troubled spirits; on beholding the bright, the broad and boundless ocean, the smile kindles again upon the care-worn face. Oh! it is a glorious thing, and healthful to the soul, to wander and look upon the sea, and with joy to remember Him who walked in the body upon its waves, who speaks peace, and gives us of His spirit, that we may follow Him to that peaceful shore and be partakers of immortality and of His glory!

After the bowels have once been opened, a tablespoonful of Castor and Olive Oil may be given once or twice a day, with 15 or 20 drops Oil of Turpentine in it, to keep them open. A tea of Senna and Manna, with a teaspoonful of Epsom Salts, is also good. No harsh or drastic purgatives should be given.

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## DIARRHEA.

THE discharges in this complaint are more copious, thin, and watery, than in Dysentery; and there is much less pain, griping, fever, and tenesmus, or straining at stool. A predisposing cause of Diarrhea is the action of the summer heat upon the system. Eating of green fruits, corn, cucumbers, and garden vegetables, and indigestible substances, change of water, exposure to damp cold air, and sudden check of perspiration, are prolific and exciting causes of the complaint.

In children, teething is almost always attended with more or less Diarrhea, the inflammatory excitement of the gums being extended to the digestive organs. Diarrhea is not so dangerous a disease as Dysentery—indeed, seldom dangerous, unless permitted to run for a length of time.

TREATMENT.—Where the disease is produced by eating too much, or by eating unwholesome or indigestible food, as is often the case, thus deranging the stomach and digestive organs, it will be well to commence the treatment with a good emetic, composed of equal parts of powdered Lobelia and Ipecac. (For the manner of giving an emetic, see "Emetic Powder.") This will free the stomach of its irritating contents, while at the same time the action of the emetic will check the inordinate action of the bowels, produce a determination to the surface, open the pores of the skin, and excite a more healthy action of the digestive organs. A good emetic will always render the cure more speedy and certain.

After the emetic is done operating (or, in case you do not give an emetic) give 2 grains of Calomel in quarter-grain doses, so that a quarter of a grain is taken every fifteen minutes for two hours. This will cleanse

out the bowels, and leave them in proper condition for more astringent medicines. Or you may give a dose of Castor Oil, or of Rhubarb, with a little Leptandrin—say 1 dram of Rhubarb and 3 grains of Leptandrin, divided into three doses and given two or three hours apart. You may add to each dose 10 grains of the Diaphoretic Powders, or as much Dover's Powders, or give at the same time 21 drops of Laudanum.

Then follow the next day with any good Diarrhea Syrup, Cordial, or Mixture, such as the Blackberry Syrup or Cordial (see preparation of those articles among the Medical Compounds), and be very careful in regard to diet, drinks, and exposure to the sun, and keep quiet for a few days. A decoction made of a handful each of Blackberry Root and White Oak Bark, about 1 pint, with say ½ ounce each of Cloves, Cinnamon, and Allspice, sweetened with Loaf Sugar or Rock Candy, and taken several times a day in tablespoonful doses, will often be very effectual—only be careful and do not astringe or bind up the bowels too much. To prevent this, it will be well to take a Pill composed as follows: Leptandrin, 20 grains; Rhubarb, 20 grains; Morphine, 2 grains, made into ten Pills, with a little Extract of Dandelion. Take one pill a day, or, in bad cases, two pills at a dose, once a day. The drink should be composed of Mucilage of Elm Bark, or Gum Arabic, or cold Flaxseed Tea; the diet light, such as boiled Rice, Flour boiled in sweet Milk, parched Corn, and the like.

In very many cases a solution of Salt, Vinegar, and warm Water, will be found an effectual remedy for Diarrhea. (See that remedy among the Medical Compounds.)

The following is also regarded by many as an infallible remedy in Diarrhea: Parch ½ pint of Rice until it is perfectly brown, boil it down as usually done, eat slowly, and it will stop the most alarming case in a few hours.

The following recipe is very valuable in aggravated cases of this disease: Chalk Mixture, 4 ounces; Tincture of Rhubarb, 2 ounces; Tincture of Ginger, 2 ounces; Tincture of Opium, 1½ ounces; Aromatic Spirits of Ammonia, ½ ounce; mix, shake well before using, and take a tablespoonful every hour or two, according to symptoms.

The following prescription will often be of value for children suffering with Diarrhea, accompained with fretfulness and restlessness.

Bromide of Potassium.....ten to twenty grains
Bismuth Subnitrate.....two drachms
Essence of Pepsin.....one ounce
Anise Water.....one ounce

A teaspoonful every hour or two.

CHRONIC DIARRHEA.—Simple Diarrhea sometimes becomes chronic—that is, of long standing, by being neglected or improperly treated. It is then more difficult to cure. Very often the mucous membrane of the

intestines becomes very much irritated, and assumes an abnormal or unnatural condition, perhaps more or less ulcerated. The liver, also, is apt to be in an unhealthy condition, and the whole function of the digestive organs is very much impaired. In such cases the remedies must be of a soothing and tonic character. At the same time attention must be paid to the liver and skin, for both will be found more or less out of order.

Mucilaginous articles will form an important part in the treatment, such as will have a tendency to shield the lining of the bowels from the acrid matter formed in the stomach, and from the unhealthy bile thrown out by the liver. The mucilage of Gum Arabic should form a part of all the preparations given, or should be used freely at the same time. This Gum alone has often been known to cure when all other means had failed. One case I now think of, where the patient, a lady, had tried various remedies for a long time, all without any permanent advantage, or at least without a cure. She took to the Gum Arabic alone, eating from a half to a tablespoonful of it daily, and was finally cured by it.

Slippery Elm Bark is, perhaps, nearly or quite as good, and may be used in infusion, or the bark eaten freely. It is especially good if there is inflammation of the bowels attending the disease.

For Chronic Diarrhea, the following pills should be taken: Take Leptandrin, 20 grains; Ipecac, 20 grains; Podophyllin, 5 grains; pulverized Opium, 8 grains; mix well, and make into 40 pills, with a little extract of Dandelion; and take one pill night and morning. These will act gently on the liver and the skin, and at the same time have a beneficial effect on the bowels. At the same time the patient should wash the whole surface of the body once a day with warm Saleratus Water, or weak Lye, by means of a sponge or towel, and rub well, while drying, with a coarse towel. This will tend to open the pores of the skin, and excite it to a more healthy action, which is a very important matter. Use, also, the Blackberry Syrup in tablespoonful doses, two or three times a day.

Should the disease be of long standing, and the bowels most likely ulcerated to some extent; or there is great soreness, as though the inside of the bowels or stomach was raw; and especially if there is any blood and mucus mixed with the discharges, then prepare and take the following pills: Take Leptandrin, 10 grains; Nitrate of Silver, 10 grains; Opium, 10 grains; pulverized Golden Seal, 20 grains (or Hydrastin, 10 grains); mix well, and make into 20 pills with mucilage Gum Arabic, or extract Dandelion, and take one pill every night on going to bed.

A friend of mine also cured himself of a most inveterate Diarrhea, of many months' standing, after trying everything else he could hear of, by simply eating, once a day, as his dinner, a slice of raw, smoked Bacon-side, a raw Onion and plenty of Salt, and Bread. It required only about two weeks to effect the cure. The remedy is not bad to take, if one is hungry.

In treating a case of Chronic Diarrhea, no matter what remedies you employ, care must be taken as to diet. It should be mild, nourishing, unstimulating, and easily digested. Boiled Flour and Milk, boiled Rice, parched Rice, and parched Corn, ground to meal and boiled, and the like, will be found both medicine and food.

In some cases I have found astringent medicines to have the best effects —while Opium, in any form, would only aggravate the complaint. It is always best to use but little Opium in Chronic Diarrhea. A tea or decoction of Logwood will be found an excellent astringent in this disease. You can always find the Logwood at the drug-stores, or wherever they keep "dye-stuffs" for sale. It is generally in the form of small chips. Get ½ or ¼ pound, and of say 1 ounce make a pint of strong tea, and take ½ a teacupful (or less, if very strong) two or three times a day.

A decoction of Blackberry Root is also an admirable remedy in this complaint; it is both tonic and astringent, and may be relied on with great confidence. I have known the most inveterate cases of Chronic Diarrhea cured by taking about 2 grains of Ipecac morning and evening, and drinking ½ a teacupful, three times a day, of a strong tea or decoction of Blackberry Root. Ipecac seems to exert a very beneficial influence in diseases of the bowels, given in small doses.

Sometimes a large blister drawn on the abdomen will have a decidedly beneficial effect; or a large Pitch plaster worn there for several days at a time.

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## DYSENTERY, OR BLOODY FLUX.

This disease usually commences with severe pains in the abdomen, with frequent inclinations to go to stool, which are small in quantity, and sometimes mixed with blood. There is mostly a peculiar sensation of bearing down while at stool, as if the whole bowels were falling out, and accompanied with considerable pain.

This disease which has so much engaged the attention of medical writers, is more frequent in the autumnal months than at any other season of the year. The animal frame is, at this time, generally relaxed and debilitated by long exposure to the stimulus of a high atmospherical temperature, when the digestive organs and internal canals necessarily partake of this debility, and are more easily irritated than under different circumstances. Dysentery occurring in its simple form arises generally from diet, either in the shape of unwholesome or too rich food, or in improper quantities, or from exposure, or eating vegetables or fruit. Any substance disagreeing with the stomach, may operate in its production, or exposure to currents of cold air, when the body is heated, wet clothes and wet feet, all producing a

sudden suppression of perspiration. Dysentery, in its worst form, is the disease of hot climates, and this complaint rages with a degree of violence unknown in more temperate regions. It arises from two causes, *direct* and *sympathetic:* the direct from those of improper diet or food; the sympathetic, or indirect causes, are those which operate on the bowels through the medium of other organs, chiefly of the Skin, Liver, or the Lungs. Any exposure to cold, or accidentally getting the body or feet wet, or any sudden suppression in females during their monthly sickness, are apt to produce Dysentery, and not unfrequently accompanied with slight fever.

Remedies.—I have found in this disease, when the complaint was not accompanied with fever, that simple remedies would relieve it in a short time; and in mild cases, the pulverized Rhubarb burnt to ashes in any iron vessel, stirring it until it turns to a black color, or well burnt; give ½ teaspoonful, or less, three or four times a day, swallowing it with a little water, will often check, in a few hours, the disease. Or a tablespoonful of Castor Oil, and 1 or 2 teaspoonfuls of Paregoric mixed, taken once a day, will be, in many cases, all the medicine required. Burnt Brandy is sometimes taken in this disease. If the pain is not relieved by Paregoric, 2 teaspoonfuls more should be taken again at the end of four hours. A dose of Rochelle Salts, or Magnesia, will sometimes be found to answer better than the Oil; and 30 or 40 drops of Laudanum to be more effectual than the Paregoric. Where the Paregoric and Laudanum do not procure relief from pain, a quarter of a grain should be injected under the skin. At the same time these medicines are used, the feet and legs should be soaked in hot water, and, if convenient, give the warm bath, have warm blankets ready, rub the body dry, and quickly cover your patient, and give plentiful drinks of warm teas, such as Flaxseed Tea, Balm, Sage, or Catnip—the object is to produce a perspiration. Two grains of Ipecacuanha, once in three hours, will have an effect to excite a sweat, if the hot bathing and teas should fail to do it. In my practice I have found great benefit from the use of Dover's Powders. [Refer to Dover's Powders for dose.] This powder I prefer to all diaphoretics, for it not only sweats, but quiets the bowels likewise.

The Dysentery to which children are subjected, will generally yield to a mixture of Oil and Laudanum, or Paregoric. To a child a year old, a tablespoonful of Castor Oil, mixed with 4 drops of Laudanum, should be given every day until the complaint is cured. This dose of Oil may seem large for a child of that age, but experience has confirmed the safety and great benefit derived from large doses of Oil in this complaint. We have often administered 2 tablespoonfuls of Castor Oil in a day, to a child of that age, with the happiest effect. The intention of this large dose is to clear the bowels thoroughly, and the opiate, or Laudanum, is to allay the intense

pain. If the first dose of Laudanum will not produce relief, in eight or ten hours after the first dose is given, we give a second dose of Oil and 3 drops of Laudanum, which generally gives relief. If the Oil will not agree with the stomach, which is sometimes the case, give doses of the Neutralizing Cordial, once an hour, mixed with 4 drops of Laudanum; this will allay the pain and evacuate the bowels. It must be remembered that physic of all kinds is much longer in operating when given with Laudanum, or other opiates, than when taken without them. A dose of any kind of medicine will often be two or three times as long in operating when the system is under the influence of Opium, as it will when no such medicine has been given with it. It will sometimes be found in the Dysentery of children, that neither Oil nor any other purgative medicines, or Laudanum, or Paregoric, or any other opiates will subdue the disease. In such cases, 1 grain, or even ½ a grain of Ipecacuanha, given once in three or four hours, will often both relieve the pain and evacuate the bowels. We have often seen Ipecacuanha given in this way, without any Laudanum, or Paregoric, or any other opiate, cure the Dysentery of children, when all other means have failed. One grain of the Dover's Powders, given morning and evening to a child a year old, with 3 grains Podophyllin, will occasionally be found more suitable than Laudanum or Paregoric. If the children are younger or older than one year, the dose must be reduced or increased, in proportion to the age of the child. To a child six months old, in this disease, 1 drop of Laudanum will be a full dose; and to a child two or three years old, 5 or 6 drops are a proper dose. To children past three years, 2 drops for every year may be added. We have often given to a child six months old, a tablespoonful of Castor Oil, at a dose, in this complaint; but when they are younger than this, a dessertspoonful, or a teaspoonful will be generally enough. Sometimes in the early stages of this disease, you will find that an emetic of Ipecacuanha will have a wonderful tendency, if given early, to resolve the inflammatory action of the bowels; and likewise remember, in administering this medicine, that it is more successful in small doses. A blister upon the bowels, where there is not much fever, is often very serviceable. Fomentations by flannels, or cloths dipped in hot water, or spirits of any kind, or warm herbs, are almost sure to be beneficial, as they tend to solicit the blood to the surface, and to excite perspiration, or sweat.

Dysentery, or as it is usually termed in the country Bloody Flux, is a serious and often dangerous disease, if not properly treated — often prevailing in certain districts as an epidemic; that is to say, extending generally over the country, frequently attacking several members of the same family. It is a disease that is not likely to disappear of itself, and very often proves fatal; yet, if properly treated — which may easily be done — it is one of the easiest diseases cured in the

world! If I had my choice among all the epidemic or alarming diseases known to this country, as to which I would prefer to treat, always warranting a cure, I would select Dysentery, and especially where it prevails as an epidemic. I propose to give here the very latest and most satisfactory method of treatment.

When the diagnosis of Dysentery is made early, a saline purge should be administered, as much as an ounce of Epsom Salts may be given at a dose. The method of treating Dysentery by constant purging is unsatisfactory, and has given place to a far better plan of treatment; however, in most cases it is well to start with a purge, which removes all irritating material contained in the bowels without adding to the irritation. This is the object which the Salts accomplish. A quarter of a grain of Morphine is now given to an adult, followed in half an hour with from 20 to 60 grains of Ipecacuanha, which is to be repeated in a few hours if not retained the first time.

A one-hundredth of a grain of Corrosive Sublimate may be given every two hours, or a drachm of Bismuth may be given every hour. Morphine given by the syringe and needle must be used for the pain and griping.

The best treatment for the chronic form is to run into the bowel with a tube a couple of pints of warm Nitrate of Silver solution (a drachm of Nitrate of Silver to 2 pints of warm water), or a warm solution of Quinine, composed of 16 grains of Quinine to 2 pints of water. This treatment should be followed out once or twice a day until a cure is effected.

If the rectum is very sensitive, it may be difficult to introduce the tube, and in such a case a few drops of a four per cent solution of Cocaine should first be gently injected.

In the meantime, the patient can or should drink occasionally of Slippery Elm Water or mucilage of Gum Arabic, Flaxseed Tea, or any other mucilaginous preparation, as well as warm sudorific or sweating tea; and for diet, if desired, may take boiled flour and milk, or "thickened milk," as it is called, parched corn meal boiled in milk, chicken broth, a little toast, and the like.

If there is much pain in the bowels and apparent inflammation, warm fomentations, as flannel cloths dipped in hot water, or, which is better, a hot decoction of Hops, and other bitter herbs, can be applied to the lower abdomen, as warm as can be borne, and frequently changed or renewed. Injections of cold water, in case there is great tenesmus or desire to go to stool, will be beneficial; and in severe tenesmus, straining, and great irritability and inflammation of the rectum, with frequent desire to go to stool, an injection given occasionally, and retained a while by force, composed of Cold Starch Water ½ pint, to which is added 2 teaspoonfuls of Laudanum and 1 teaspoonful of the Neutralizing Powder, steeped in ⅓ of a teacupful of Hot Water, will be found highly beneficial.

Should a relapse occur, or the patient at any time grow worse, instead of better, begin the whole treatment anew again, and pursue it in the same way—only perhaps a little more vigorously. This course of treatment, to be governed and modified according to symptoms and the severity of the disease, will seldom if ever fail; and generally effects a cure in from two to four days.

A new method of treatment has recently been called to my attention. I have not yet tried it myself, but others report very favorably of it. It consists in the administration of a drachm of Sulphate of Soda and an ounce of Fennel Water from four to eight times a day, and repeated each day until all blood and mucous disappear from the stool.

Very little other treatment will be necessary. Perhaps occasionally an injection, such as I have named; and occasionally some mucilaginous drinks, which may always be improved in taste by adding a little White Sugar and Lemon Peel and Juice. External treatment, such as bathing the whole body with warm Saleratus water, or weak Lye, and rubbing well with a dry towel; occasionally soaking the feet in warm water; hot fomentations to the abdomen—or, if preferred, cold applications, and the use of diaphoretic or sweating teas, will always be proper, and often highly important. With the treatment here recommended, if thoroughly carried out, no one need fear the Dysentery or Bloody Flux, no matter how alarmingly it may prevail in the neighborhood, or how unsuccessful the old plan of treatment may prove.

The treatment of Dysentery in children should be the same as in adults, the doses of drugs being made smaller and solutions weaker. The greatest caution must be observed in giving Opium or Morphine to children, as they do not bear it well.

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## CONSTIPATION OF THE BOWELS.

This is one of the most troublesome of all complaints, and if allowed to become confirmed, often leads to most serious consequences. It can never be cured by pills or other medicines taken into the stomach. On the contrary, the tendency of these things is inevitably to make it worse. The only permanent cure is a proper system of diet and regimen. But if not cured, immediate relief may be obtained by using injections. The best instrument for this purpose is the common syringe, which costs but a trifle. For injections, pure water in many cases will answer, milk warm. Throw up as much as to make the stomach feel a little uncomfortable, and if one injection does not answer, try another, and even a third.

Constipation in some persons becomes a habit, by carelessness and by suffering the bowels to remain in this state for several days or more without an operation, and thereby is the cause of other affections, such as Colic, Dyspepsia, etc., of which diseases it is the general accompaniment. It is therefore of the utmost importance to attend to this matter strictly, as a neglect of the daily evacuations from carelessness, or excess of food and want of proper exercise, will sooner or later produce a diseased state of the system.

The treatment is very simple, and merely requires a dose of Salts or Rhubarb, or a Seidlitz Powder, to relieve the bowels, and attention to the quality and quantity of food. Pills or drastic purgatives of every description, all more or less containing Aloes, should be strictly avoided, as they only increase the debility of the intestines, which is the cause of the complaint, and they likewise irritate the rectum, and strongly tend to the production of Piles. To pregnant women, when their bowels are constipated, which means bound up, the same mild treatment will afford relief. The best plan of treatment is the French method, by injections or clysters of cold or tepid water. I, therefore, from long experience, advise this simple, yet most effective remedy, to remove Constipation, or Costiveness of the Bowels. The French are great advocates for this mode of treatment—Clysters and Ptisans, or, in other words, teas—and to this may be attributed their general fine health and buoyant spirits; and if we would profit by their example, and avoid the use of active and strong medicines, thousands of persons would prolong their lives to a good old age, who now die prematurely by dosing and drugging.

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## COLIC.

Violent pain in the region of the navel, attended with thirst, and belching of wind, costiveness, and the belly swelled, feet become cold, and a cold clammy sweat is often produced by the intense suffering.

It is brought on by eating or drinking something that disagrees with the stomach or bowels, by cold, or exposure, or getting the feet wet.

Remedies.—Bathe the feet and legs in Warm Water, and apply Hot Fomentations over the stomach and belly, by which is meant Hot Water, Hot Herbs, or a poultice of Mustard, or Hot Salt; take a good dose of Castor Oil, and drink freely of Peppermint, or Ginger, or Calamus Tea, or warm Lemonade, and if considerable pain, from 30 to 60

drops of Paregoric in a little Hot Water, and if the Paregoric is not convenient, give 25 or 30 drops of Laudanum. If the pain still continues, or the oil does not act on the bowels, give a clyster of Warm Water, to which add a table-spoonful of Salt, and a tea-spoonful of Lard, and, if convenient, give the warm bath. I have found the Thomsonian remedy, No. 6, made of Red Pepper, French Brandy and Gum Myrrh, which articles can be purchased at any drug store, and should be kept in every family, very useful; for I consider it on of the most valuable medicines now in use for Colic, Cramps, Cholera, Bowel Complaints, and a variety of other diseases in which I have used it with great benefit. "Render unto Cæsar the things that are Cæsar's." The dose is generally a tea-spoonful in a little hot water, and repeated, if necessary. If the pain is not relieved, give Laudanum gradually, in Ginger, or Mint Tea, and to the clyster add a tea-spoonful of Laudanum. Persons who are subject to Colic should be cautious as to their diet, and avoid costiveness, by going regularly to stool.

An eminent physician recommends the following as an infallible remedy for Colic:

When this disease arises from flatulence, a tea-spoonful of Spirits of Turpentine, taken with a table-spoonful of Castor Oil, will immediately relieve the sufferer.

One of the quickest and most certain remedies is Elaterium in $\frac{1}{4}$ grain doses every two hours until the bowels move.

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## BILIOUS AND CRAMP COLIC.

Bilious Colic, sometimes also called Cramp Colic, is characterized by excruciating pain in the region of the navel, thirst, feverish symptoms, vomiting of bilious matter, and costiveness.

The attack generally commences with a bitter taste in the mouth, followed by vomiting of a yellow greenish matter. The bowels are constipated; little or no discharge of urine; the pain about the navel will sometimes shift from place to place; a sort of hoarseness usually attends the patient throughout the disease, and more or less fever Sometimes there are cramps in the stomach and limbs.

Treatment.—In two important respects—vomiting and costiveness—Bilious Colic very much resembles the Milk Sickness, and therefore is to be treated in a very similar manner. Endeavor to allay the

irritability of the stomach by giving, in small and frequent doses, Peppermint Tea, with a heaping teaspoonful of Saleratus dissolved in a half-pint of it. Apply over the stomach and bowels a large Mustard Plaster, wet with Vinegar—first bathing the abdomen with Spirits of Turpentine. If this does not stop the vomiting, give an emetic.

As soon as the stomach will retain medicine, commence giving something to move the bowels; either an Anti-bilious Physic, or the following, which in this case is one of the best: Take Epsom Salts, 8 ounces; Muriatic Acid, 2 drachms, or 2 teaspoonfuls; Boiling Water, 1 pint; after it is cool, add ½ ounce Essence of Peppermint, and as much Essence of Anise, to give it a flavor and make it more palatable. Dose: 1 tablespoonful every half hour till it operates, or the whole is taken.

After the mustard has been on as long as it can be borne, remove it and apply constantly to the abdomen, flannel or other cloths, dipped in hot water. This will have a soothing and relaxing effect.

If the costiveness is obstinate, and the medicine does not take effect, active injections must be given, such as an ounce of Epsom Salts in a pint of warm water. The bowels once open, keep them so, and produce perspiration by means of 10 grains of Dover's Powder for an adult.

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## CHOLERA MORBUS.

This disease is characterized by vomiting and purging, with griping, pain and cramps in the stomach and bowels. It prevails generally during hot weather. The discharges from the bowels are at first thin and watery, but after a little while they become more bilious; the retching, vomiting, purging, and pain, become more severe and frequent, and during the intervals, there is great sickness and distress in the stomach; sometimes there are cramps in the muscles of the abdomen and extremities. There is great thirst, and desire for cold water; but nearly every thing taken into the stomach is thrown up in a very short time. As the disease advances, the pulse becomes small and feeble; the extremities cold; countenance pale, expressive of great distress; a cold sweat breaks out, succeeded by great prostration.

Causes.—Cholera Morbus is more common some years than others, prevailing sometimes as an epidemic. When the tendency to the disease exists, the use of indigestible and irritating food and drinks, unripe fruit, or even ripe fruits that contain acid, or soon run into a state of fermentation, vegetables, green corn, and the like, will often bring it on. At such times, when the disease is known to be prevailing, the daily use of Antacids, especially of a little, say five grains of Bicarbonate of Soda after each meal will generally neutralize the poison acid in the stomach, and prevent the disease.

TREATMENT.—There is, of course, great irritability of the stomach, the patient throwing up nearly every thing he swallows. A very good thing to settle the stomach as well as to check the purging, in this disease, is the following which can be obtained of most druggists, made up into tablets: Bismuth Subnitrate, ½ grain; Cerium Oxalate, ½ grain; Cocaine, $\frac{1}{12}$ grain.

A tablespoonful of Black Pepper boiled in ½ pint of milk, and given gradually in small doses, will sometimes quiet the stomach; so will Peppermint Tea with a little Saleratus dissolved in it. But if all efforts of this kind fail, give an emetic of Lobelia and Ipecac. After which, as soon as the stomach is sufficiently quieted, give the Neutralizing Powder, either in the form of powder, or in a liquid state. If in powder, about 1 teaspoonful to an adult, every half hour, or hour; if in liquid, take 1 ounce of the powder, and add ½ pint of Boiling Water, sweeten with Loaf Sugar (and you may add a little good Brandy), and give 1 tablespoonful once an hour. This is to be continued till it acts upon the bowels, and the discharges are changed in color and consistence, after which it can be given less frequent.

At the same time, the feet and legs should be bathed in Warm Mustard Water, after which a Mustard Plaster should be applied over the stomach. It is a good plan, also, to apply a warm fomentation of Hops and Vinegar to the bowels, or cloths dipped in the decoction of the same.

If there is much pain in the bowels, 10 to 20 drops of Laudanum may be given also (to an adult), and repeated in an hour or two if necessary.

Endeavor to produce and keep up a perspiration, by the use of a hot bath and blankets and hot-water bottles in bed.

After the urgent symptoms have been allayed, and sufficient of the Neutralizing Physic has been taken to act upon the bowels, you may give something more astringent. A strong decoction of the Blackberry Root may be made, to which some Cloves and Cinnamon have been added, and the patient take ½ teacupful, two or three times a day. Subnitrate of Bismuth in five grain doses is very useful and soothing to the inflamed bowel. And after the first twenty-four hours, if the patient is improving, or the discharges from the bowels are pretty much checked, it would be well to give a pill of Aloin, Belladonna, and Strychnia. This will excite a healthy action of the liver and secretions, and prevent a sudden constipation of the bowels, which must be avoided, or inflammation may take place. A grain or two of Ipecac may be added to each dose.

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## PERITONITIS.

THIS is a disease of the thin and delicate membrane which lines the abdominal cavity, and forms the outermost coat of the intestines. It is rarely caused by catching cold; most often it is caused by perforation of

the bowel during an attack of Typhoid Fever, or perforation of the vermiform appendix during an attack of Appendicitis, or the breaking of an abscess in the tube leading from the ovary to the womb in women.

The symptoms are intense pain in the abdomen, which becomes bloated and balloon-like. The thighs are drawn up, and the patient lies on his back with a pillow under his shoulders, this being the most comfortable position. There is sometimes a chill, but it is always followed by fever, the pulse becomes rapid; vomiting and diarrhea often develop.

This is usually a fatal disease. Sometimes in case of perforation an operation may save the patient's life; but there should be no delay.

The treatment consists in making the patient as comfortable as possible with Opium, stimulating, and bathing.

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## INTESTINAL OBSTRUCTION.

This is a condition of the bowel in which there is something which prevents the onward passage of the contents of the intestines. This condition may follow cases of recovery from Peritonitis; it may be caused by Appendicitis, or by Hernia (rupture), or by one part of the intestine telescoping into another part. It may be due to twists or sharp kinks, or to tumors.

The symptoms are a very sudden attack of pain, the patient often being able to put his finger on the very spot. Vomiting comes on soon and cannot be checked readily. The bowels do not move. The act of vomiting soon takes place without any effort, the material vomited soon becoming extremely offensive.

The treatment consists in making the patient comfortable with Morphine, washing the stomach, and injecting large quantities of warm salt water into the rectum. Changing the position, shaking the patient, and kneading the abdomen, may be tried early. If these measures do not succeed, an operation should be performed at once, and is usually successful. Purgatives should not be given.

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## APPENDICITIS.

Many people think that this is a new disease, and that it is much on the increase. These are probably mistaken ideas. However, it is only in the last few years that doctors have known just what was the matter with people who had intense attacks of pain in the lower right side of their abdomen. Sometimes people were said to have died of Peritonitis, the cause of the Peritonitis then being unknown; but now we know that Appendicitis is frequently the cause of Peritonitis. Hence Appendicitis is

now said to be the cause of death, when it was in the past credited to Peritonitis.

The vermiform appendix is a blind pouch, being, so far as we know, useless, which extends from the large intestine, for from four to six inches, free in the abdominal cavity. It is about as large round as the little finger and is hollow to the tip, and lined with mucous membrane.

The contents of the intestine can readily enter this blind tube, but they cannot so easily escape. Sometimes fecal matter collects in this tube, dries out, is molded and broken by the intestinal movements until the particles resemble grape-seeds, date-seeds, or fruit-seeds of various kinds; hence the erroneous idea that grapes often cause this disease. I have seen many appendices, which have been diseased, opened, and have never yet seen grape-seeds in a single instance, though I have seen particles of dried fecal matter which very much resembled grape-seeds. Don't misunderstand me, I believe grape-seeds might cause Appendicitis, perhaps have done so, though I do not think they are often a cause. Hundreds of people eat grapes, swallowing the seeds, who never have an attack of Appendicitis.

Appendicitis then is an inflamed condition of the vermiform appendix. If the inflammation continues for any considerable time, matter is liable to be formed, and we then have an abscess in the appendix. The inflammation may subside before matter is formed, or the matter, being formed, may be taken up by the blood and the patient recovers from the attack apparently as well as ever; but the appendix is not left unchanged, a scar is formed, and the appendix is now more liable than ever to become inflamed. So often do other attacks follow the first one, that the exceptions only make the commoner cases stand out more prominently, in fact "prove the rule."

The symptoms of acute Appendicitis are, intense colicky pain in the right side of the abdomen; this pain may extend to the back, shoulders, and in fact all over. The abdominal muscles become hard, the thighs are drawn up, and the right side becomes very sensitive to pressure. There may be either constipation or looseness of the bowels. There is some fever, and the pulse becomes more frequent. The patient has the appearance of intense suffering. It is sometimes difficult to distinguish between Typhoid Fever and Appendicitis.

When a person has Appendicitis, and there is no doubt about it, I believe that the sooner the appendix is removed the better. Whenever there is matter formed, we all know it must be let out. Matter usually forms in the appendix during an attack of Appendicitis; sometimes it does not. There is no way of telling positively whether matter has been or is going to be formed or not. Almost invariably if one recovers from a first attack, he will have a second, a third, perhaps many more, usually in increasing severity.

Some people do not recover from the operation, but these are usually cases in which the operation has been too long delayed. Some people die

who refuse to be operated upon; many of these would have been saved by the operation.

Some people recover from an attack, but, as I said before, they never know when they are going to have another and more severe attack, perhaps in a locality where the conveniences for proper treatment are lacking. Upon the diagnosis of Appendicitis being made, only the lack of proper conveniences and the absence of a competent surgeon should deter one from being operated upon.

When one thinks that he is going to have Appendicitis, absolute rest in bed is imperative. The hot-water bottle filled with ice-water and kept constantly cold should be kept on the right side of the abdomen. Calomel in quarter-grain doses should be given every fifteen minutes until two grains have been given, or until the bowels move freely. If the bowels do not move, a half an ounce to an ounce of Epsom Salts should be given.

If the pain is very intense, it should be controlled with Opium, to the extent of a quarter of a grain of Morphine for adults.

If one recovers without an operation, he should be careful not to overwork for several weeks, being especially cautious not to strain himself by lifting.

In case one is operated upon, one to three weeks are required in bed. The same precautions should be observed after the operation as are given for those who recover from an attack without an operation.

This disease occurs in men and women, more often, however, in men. It may occur at any age, from infancy to old age, but more often between the ages of twenty and thirty years.

Many good doctors may not agree with me in my attitude in regard to Appendicitis. The question is in many professional minds unsettled. I can only say that I have arrived at the above conclusions after an extensive experience, after careful study of my own and others' experience, and after careful consideration of the conclusions of others of equally wide experience as my own.

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## PILES.

The Piles, medically called *Hemorrhoids*, are tumors which form at the verge of the fundament, medically called the *anus*—or, in plainer language, the part out of which you pass your stools. This disease may be situated either within or without the bowel. The first is called the Internal Piles, and the second the External Piles. Frequently these tumors or swellings bleed at every motion of the bowels, and others are attended with no discharge. One is called the Bleeding Piles, and the other the Blind Piles. This is, perhaps, the most troublesome complaint among the whole catalogue of diseases, both to

male and female, and in many instances very difficult to cure, although not a dangerous complaint.

These tumors or swellings are sometimes separate, round, and prominent; in other instances, they are of a large circular bunch. A person afflicted with the Bleeding Piles is subject to a greater or less discharge of blood, from a rupture or distention of the veins, while evacuating his bowels. In most cases of the Piles there is extreme pain, and often severe anguish when this discharge takes place. When this complain is permanent or fully established, it produces, in many instances, a degree of inconvenience which interferes most seriously with the active duties of life. Itching of the fundament is, perhaps, one of the earliest symptoms—a sense of heat and fullness of the rectum—a dull, heavy weight in the back and lower region of the belly, and uneasiness in sitting or walking about. The patient will suffer the most severe agony while passing his stools, and the tumors, whether internal or external, will become swollen, tense, and extremely tender, so that they can scarcely be touched. They sometimes have quite a throbbing pulsation in them.

If the tumors break and discharge their contents, relief soon follows, until a new crop forms; but where they continue tumid or hard, and unbroken for some time, there will be great suffering when the person has a discharge from the bowels, and not unfrequently at this time, by straining or efforts, the tumors bleed profusely, which immediately, for a time, gives partial relief. Hemorrhoidal tumors vary very much in form and color. When they are highly inflamed they are red or purple, tense, and hard; but when they are in an indolent condition, they are more or less pale or flaccid—or, in other words, soft. Some of these tumors are hardly larger than a pea, while others exceed a hen's egg in size. The symptoms of the External Piles are, an external swelling, which feels round and hard, which is hot and painful on the passage of the stools, and more or less itching. It sometimes bursts and discharges blood with the stools. In a few days it begins to disappear Sometimes it becomes inflamed and very painful, and not unfrequently it suppurates and lays the foundation of Fistula.

The Internal Piles are originally enlarged veins. They produce great pain, bleed frequently, and render the passage of the excrement difficult, while the stools are often mixed with blood, which frequently produce what is termed *Prolapsus Ani*, or falling or protrusion of the anus. The person, after each stool, feels as if there were more to be discharged, and strains until he forces a part of the rectum externally, thus producing what is medically called *Prolapsus Ani*, and is often obliged to return these with his finger. And beside the evacuation being very painful and tedious, this return of the part is exceedingly

difficult; and when the number and size of the Piles, and the degree of the prolapsus become great, then their return is impossible, without giving sufficient time for the inflammation to subside—for, in attempting it in this stage of the complaint, you will inflict an unwarrantable degree of pain and suffering on the patient. In some instances the urine is retained, the passages of the stools very difficult, and there is a free discharge of thin acrid matter from the parts. These symptoms will, however, be relieved as soon as the pressure or inflammation subsides, and the prolapsus is returned, when the patient will be partially relieved for some time.

The Piles are produced by costiveness, a want of cleanliness, and by intemperance in eating and drinking. A diseased state of the liver, corpulence, a plethoric or full habit, strong purgatives, particularly Aloes (which, if taken too constantly, act powerfully on the rectum or lower bowels), will all cause Piles and aggravate them when existing. Women are often great sufferers from this painful and tormenting disease, produced by the pressure of the uterus, or womb, upon the rectum in child-bearing, and from an inactive, sedentary life—particularly those who are in the habit of sitting or sewing the whole day, taking no exercise or any rest of position, which produces an indolent or torpid state of the bowels, and is the usual cause of Piles.

In some cases they are attended with severe inflammation, pain, suppuration, and discharge of matter. When this is the case, there is danger of the formation of fistulous ulcers.

The Bleeding Piles produce a paleness of the skin, and a general weakness. If a falling of the intestine happens at the same time, the exhaustion of the strength and the weakness of the part often requires very great care in returning this protrusion or prolapsus. Sometimes only a very small part of the intestine is thus displaced; on other occasions, there is a very considerable portion of it. When this is protruded at the time the patient is at stool, the part is to be immediately replaced. This is to be done with the finger, which should be well oiled or greased. The patient should accustom himself to do this without assistance. The greatest difficulty, in some cases, is not the returning of the intestine, but keeping it in its place. The latter object often gives a great deal of trouble, and frequently requires a compress, doubled several times, and applied to the anus, and supported in this position by means of a bandage. The Piles also occasionally cause abscesses to form in the vicinity of the anus, terminating in Fistula—a name applied to a sore which runs some way under the skin, and penetrates within the intestine, and discharges a thin matter from its sides, which are converted into secreting surfaces. Piles may be occasioned by whatever interrupts the free return of

blood from the rectum; such as the collection of hard *fæces*, or, in plain language, the stools, which excites and irritates those parts; or it may arise from an impregnated or enlarged womb, or from relaxation and debility, and not unfrequently from an inflammatory action in the rectum or fundament, and a diminished secretion of mucus from its inner membrane. A diseased state of the liver is also a cause, by preventing a free return of blood; also excessive indulgence in venery; but usually they arise from intemperance, excessive high living, and want of exercise. A confirmation of this remark is found among persons who have led an active life, till a certain period, when fortune or easy circumstances have induced them to retire from business, and, indulging in intemperance, they have become, for the first time, affected with Piles.

Corpulent or fat persons are much subject to this disease, occasioned by the pressure of the omentum or apron covering the bowels, and mesentery or membrane uniting the bowels, upon the mesenteric veins. I may, then, in reference to the causes of this complaint, conclude my remarks by saying, it is generally produced by sedentary habits, corpulence or full plethoric habit, intemperance, a morbid condition of the liver, pregnancy, costiveness, dyspepsia, or indigestion, high or luxurious living, and last, though not least, drastic purgatives.

Remedies.—The first, and one among the most important remedies in this disease, is a proper course of diet. No wines or ardent spirits must be used; for this complaint is generally brought on by high living, therefore an opposite course will be essential, as a powerful means of prevention and cure.

Costiveness, more or less, always accompanies or greatly aggravates this complaint, if it does not, in many instances, produce it; therefore the important necessity of attending strictly to a regular state of the bowels, and using such laxative food as will regulate them properly; such as Rye Bread, Indian Meal, in any form, eaten with Molasses, Rye Pudding, coarse unbolted Wheat Bread, Potatoes, Ripe Fruit, Stewed Peaches, Milk, and generally a nutritious vegetable diet, so as to regulate or prevent costiveness of the bowels. Medicines which act moderately upon the bowels are frequently required. In such cases, you will find the Cream of Tartar, in the dose of a heaping tea-spoonful, mixed with Water, Molasses, or Syrup, a good remedy. The compound Rhubarb Pill is also a mild purgative, and does not irritate the rectum. The Flower of Sulphur is a very mild cooling laxative, and if given with Cream of Tartar, will very much assist its operation. Mix equal parts of the Flower of Sulphur and Cream of Tartar, and give a small tea-spoonful of this once a day, mixed with

Molasses or Honey, until it acts sufficiently upon the bowels, and take through the day an infusion, or tea, made of equal parts of Elder Flowers and Mullen combined. This will have a favorable effect upon the parts diseased, by its laxative, cooling, and astringent powers.

When the tumors become very painful, and are considerably inflamed, a poultice made of the Pulverized Slippery Elm Bark will be found to give great relief; and apply the following valuable ointment, with which I have relieved more suffering, and used to greater advantage, than any other remedy: Take 1 tablespoonful of Vaseline, and 2 teaspoonfuls of Spirits of Turpentine; mix them well together. Apply this ointment with the finger over the diseased or inflamed parts, and up the fundament, two or three times a day. In hundreds of cases, treated by this simple, though valuable remedy, the cure was generally effected.

The following ointment is a very good one: Take of Lac Sulphur, commonly called the Cream or Flower of Sulphur, 1 teaspoonful, and mix it with 1 tablespoonful of Vaseline, and stir it up well, and apply it to thePiles two or three times a day.

Dr. Bodenhamer, so distinguished in this disease, uses an ointment made of Opium and Jamestown Weed, medically called *Stramonium*. This salve is made by simmering the bruised leaves of this weed in fresh Butter or Hog's Lard, and adding a little Laudanum to it. If rubbed on the affected parts, it is said this remedy will afford speedy relief. Bathing the parts with cold water is also highly recommended.

I have found cold water, as an injection, and bathing in it frequently, in many cases, very serviceable in this complaint, as it affords great relief by removing the inflammation; it should, therefore be repeated several times a day, or twice at least, in Piles, prolapsus of these organs, inflammations, and all diseases of the Rectum, Anus, etc. During the time that these local applications are made, it is essential that the bowels should be kept sufficiently open. In some cases, steaming over bitter herbs, such as Hops and Wormwood, and an injection of about a pint of Tepid Water up the bowels, is advised. Where there is extreme irritability of the parts and severe pains, this warm steaming will afford great relief, particularly when the tumors become very painful, and are attended with considerable inflammation.

This injection is made of the mucilage of Slippery Elm Bark, with cold water, and White Oak Bark boiled, of a moderate strength; when cold, mix them together, and inject twice a day up the rectum, and apply the salve before mentioned, Spirits of Turpentine, and Vaseline; this, with cooling washes, if regularly applied, will be found an excellent application.

I have now given you the best treatment for Piles in their various stages; and I have had an opportunity of witnessing the most surprising and gratifying success from the various remedies I have given in this, though not dangerous, yet most distressing and painful disease.

Sometimes there are Piles which bleed, but which never protrude, and are so small as to almost escape observation. The bleeding from these may be stopped, and sometimes the Pile itself cured, by lightly touching them with pure concentrated Nitric Acid. Care should be used in handling this acid, and it should only be used on the very small Piles.

As Piles bleed very much, powdered Sulphide of Iron rubbed on the bleeding surface will usually check the hemorrhage.

If the above measures do not relieve, they will seldom cure — the best thing to do is to have the tumors entirely removed. The danger of the operation is comparatively slight. It must be done under anæsthesia, that is, the operation is most thoroughly and satisfactorily done when the patient is quiet, as he is when he takes Chloroform or Ether.

Such operations nowadays promise complete and permanent cure, provided the patient avoids the original causes.

It usually requires from one to two weeks for the wound firmly to heal over.

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## PROLAPSUS ANI—FALLING OF THE BOWEL.

Falling of the Bowel or Intestine sometimes becomes a very troublesome affection, and is not always dependent upon Piles, but may be, and often is, owing to other causes, such as excessive straining at stool; to the long-continued use of Aloes, and other purgatives; to small worms in the Rectum, called Ascarides; to Costiveness, severe attack of Dysentery, and a relaxed condition of the bowels, from any cause whatever. It is very common in children, especially if troubled much with bowel complaints, such as Rectal Polypus, Diarrhea, or Pin Worms.

Prolapsus of the Bowel occurs usually while the person is at stool; and, as was intimated in the previous article, should be carefully returned by pressure of the fingers immediately afterward. Grown persons, in all ordinary cases, can do this for themselves. If the protrusion of the bowel is very considerable, or is very tender, inflamed or painful, the fingers should be well greased or oiled first. Where the person cannot do it himself, or in case it is a child or infant, the patient should be placed on his back, with the hips considerably elevated, while the nurse, attendant, or physician, previously oiling the fingers, carefully returns the protruded bowel; and if need be, that is, if it will not remain of itself, until the next stool, or passage from the bowels, a compress, made of several folds of muslin, must be placed upon the anus, and held firmly there by means of what is called a T bandage, that is, a firm bandage around the body just above the hips, with another attached to it in front, passing down between the legs, and brought up and attached again behind. This, however, is only for

temporary relief. The treatment, in order to overcome and cure the difficulty, which is a relaxed condition of the bowel, must consist mainly of astringent applications and injections. Therefore, after returning the bowel, and previous to applying a compress (where that is necessary), inject into the rectum some good astringent decoction or solution, such as a strong decoction of Oak Bark, or of Geranium Root, and then apply the compress, first wetting it also with the decoction, and have the injection retained as long as it can be borne. A little powdered Alum may be dissolved in the decoction, say a tablespoonful to a pint of the liquid; and in case of much soreness or any ulceration, a teaspoonful of Copperas. Cold-water injections occasionally will also be good, especially if there is inflammation. In all ordinary cases, especially in grown persons, such astringent injections as I have named once or twice a day, first injecting cold water, and perhaps the use of some astringent ointment, as Tannic Acid and Vaseline, will be sufficient without the use of the compress. In most cases of children, the use of the compress depends entirely upon whether the bowel will or will not remain without it. An astringent ointment will also be found of great benefit, and often sufficient to relieve ordinary cases. Take any good Ointment, and into say an ounce of it incorporate and mix well a drachm of Tannin, which may be had at a drug-store, and anoint the bowel while returning it, and afterward well with it. Or, if you cannot get the Tannin, take a small handful each of White Oak Bark, the Bark of Sumac Root, and Blackberry Root or Geranium Root, cut them up fine, and simmer in a pint of water, ½ a pint of Lard and a lump of Rosin as large as a walnut, until all the water is evaporated, then strain, and when cold anoint the bowel with this.

In case the protruded bowel becomes too much swollen and inflamed to be returned in the manner indicated, as is sometimes the case, means must first be adopted to reduce the swelling and inflammation. The application of warm water for a considerable length of time may be tried, by means of folded muslin or cloths; if this does not succeed, apply an Elm Poultice, and continue renewing, if necessary, until it can be replaced. Then pursue the measures already indicated. Persons subject, or having a tendency to Prolapsus of the Bowel, should avoid straining at stool as much as possible, and the bowels should be kept regular by the use of proper diet, such as bread made of unbolted Flour, and, if need be, occasionally some mild laxative, as Butternut Pills, or Extract of Dandelion, and cold water injections. Avoid Aloes and drastic purgatives.

If there is a Polypus, as is often the case in children, its removal will usually cure the condition.

## FISTULA IN ANO.

Closely connected with, and generally dependent upon Piles, is a fistulous disease of the Rectum or Anus, called *Fistula in Ano*. It is an abscess at the side of the rectum, opening externally near the anus, in most cases; though it may open at some distance from it, and, very often internally, into the rectum, a few inches up. Usually the first symptom is a hard swelling at the side of the anus, attended with more or less inflammation, as though a boil was about to form there. Sometimes its appearance is preceded by a sort of erysipelatous inflammation about the anus; and again there may be a hardening merely of the surface at the point where the opening is about to appear, without pain or inflammation. The Fistula may open first externally or internally, and it may open only one way or the other. When there is only an external opening, it is called a *Blind External Fistula*, and is much the easiest form to cure; when it opens only internally, it is called *Blind Internal Fistula;* and when both internal and external, it is known as *Complete Fistula.*

Abscess of the Fundament, or Fistula, is generally caused by Piles, long neglected; also habitual costiveness, and inattention to regular evacuation of the bowels. It may also be produced by external injury in that locality, from riding on horseback and the like, erysipelatous inflammation about the anus, and whatever may induce functional derangement of the rectum.

Treatment.—When the Fistula is either complete or of the internal kind, it is very difficult to cure. Indeed it is always difficult; and being also a very troublesome and often painful disease, it should always be submitted to the care of a skillful physician.

If there is much pain and inflammation, emollient poultices must be applied to reduce the inflammation. The Fistula, or opening, must also be kept thoroughly cleansed, by being injected frequently, or at least every time after an evacuation of the bowels (in case the opening extends into the rectum), with some cleansing and stimulating injection. Warm Castile Soapsuds should be used for this purpose, adding a little Tincture of Myrrh to the last injection each time, to stimulate and produce a healing action in the walls of the Fistula.

If the Fistula has not yet opened, poultices are to be applied, such as of powdered Elm Bark, or Elm and Flaxseed, to hasten it to a head, and as soon as it points, the inflammation subsides, and you perceive that matter has formed and is near the surface, it will be well to open with a lancet and let out the matter. Then poultice for a day or two to remove the remaining inflammation and tenderness before commencing the injections into the sinus or opening.

The Soapsuds injections should be used as often as morning and evening; and after a few days, weak Lye should be injected, gradually increasing the strength, as the patient can bear it. Occasionally inject with Tincture of Myrrh, weakened with an equal quantity of warm water. If much pain and tenderness, add a teaspoonful of Laudanum to the injection. A small glass or metal syringe should be used for the purpose.

Injecting these cleansing solutions into a Fistula will seldom effect a cure. They simply act by keeping the parts clean, and thereby from growing deeper and spreading.

Final cure and relief can be had only by resorting to a surgical operation, best performed under the influence of Chloroform or Ether.

It is necessary to find the internal opening, that is the opening into the rectum, and this is sometimes very difficult. When the internal opening is found, an instrument is passed from the external opening to the internal one, and with this as a guide all the parts lying between this probe and the rectum are severed. The entire passage will now readily heal. Usually it is far too painful an operation to do without Chloroform.

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## WHAT TO EAT, DRINK, AND AVOID.

Relative to the Digestibility of Different Articles of Diet.—Our journey in this life is beset with temptations, and the stomach, or rather palate, comes in for its share, and it is well that we, who wish to avoid Dyspepsia, should mind these restrictions, and know where the danger lies, as well as the invalid whose stomach is diseased. For there are a vast number of edibles and drinkables that should be prohibited to a person of feeble digestion and otherwise of nervous temperament. I will, for their benefit, enumerate a few articles which should be, if not altogether avoided, at least very sparingly partaken of; and on the other hand, a few that may be depended upon. The following is a list of articles of diet, with the time required for their digestion. Those marked * should be avoided, or eaten very sparingly by the invalid, for it does not follow that that which is the more readily soluble is the most suitable to a morbidly sensitive stomach:

| ARTICLES | HOW DRESSED | TIME IN DIGESTING. H. | M |
|---|---|---|---|
| Rice | Boiled | 1 | 0 |
| Sago | Ditto | 1 | 45 |
| Tapioca | Ditto | 2 | 0 |
| Barley | Ditto | 2 | 0 |
| Milk | Ditto | 2 | 0 |
| *Ditto | Raw | 2 | 0 |
| *Tripe | Boiled | 1 | 0 |
| Venison Steak | Broiled | 1 | 35 |
| Turkey | Roasted or Boiled | 2 | 30 |
| *Goose | Roasted | 2 | 30 |
| *Pig, Sucking | Ditto | 2 | 30 |
| Lamb | Ditto | 2 | 30 |
| Chicken | Ditto | 2 | 45 |
| *Eggs | Hard Boiled | 3 | 30 |
| Ditto | Soft | 3 | 0 |
| *Ditto | Fried | 3 | 30 |
| *Custard | Baked | 2 | 45 |
| *Salmon | Boiled | 1 | 30 |
| Oysters | Raw | 2 | 55 |
| *Ditto | Stewed | 2 | 30 |
| Beef | Roast | 3 | 30 |
| Beef Steak | Broiled | 3 | 0 |
| *Pork Steak | Ditto | 3 | 15 |
| *Ditto, Fat and Lean | Roasted | 5 | 15 |
| *Ditto, recently salted | Boiled | 4 | 30 |
| Mutton | Roasted | 3 | 15 |
| Ditto | Broiled or Boiled | 3 | 0 |
| *Veal | Broiled | 4 | 0 |
| *Ditto Cutlets | Fried | 4 | 30 |
| Fowls | Boiled | 4 | 0 |
| *Ducks | Roasted | 4 | 0 |
| *Butter | Melted | 3 | 30 |
| *Cheese, Old, Strong | Raw | 3 | 30 |
| *Soup, Beef, Vegetables and Bread | Boiled | 4 | 0 |
| *Soup, Bean | Ditto | 3 | 0 |
| Ditto Barley | Ditto | 1 | 30 |
| Ditto, Mutton | Ditto | 3 | 30 |
| Chicken Soup | Ditto | 3 | 0 |
| *Hashed Meat, and Vegetables | Warmed | 2 | 30 |
| *Sausages, Fresh | Boiled | 3 | 20 |
| *Heart, Animal | Roasted | 4 | 0 |
| *Beans | Boiled | 2 | 30 |
| Bread | Baked | 3 | 30 |
| Dumpling, Apple | Boiled | 3 | 0 |
| Apples | Raw | 2 | 50 |
| *Parsneps | Boiled | 2 | 30 |
| *Carrots | Ditto | 3 | 15 |
| *Turnips | Ditto | 3 | 30 |
| Potatoes | Ditto | 3 | 30 |
| *Cabbage | Ditto | 4 | 30 |

This list is founded upon experiments made on small quantities. Of course, the more there is taken, the more time is required, on account of the suspension of the process of digestion, occasioned by the absolute irritation from the distension of the stomach, as the time varies with the health and seasons, and with perfect or imperfect mastication.

Bringing my own observation to amend or augment the preceding catalogue, I find the following had generally better be AVOIDED by dyspeptics:

Cream,
New Bread,
Hot Rolls,
Fat Bacon,
Green Tea,
Buns,
Sweet Biscuits,
Rich Soups,
Pork,
Beef,
Veal,
Ham
Mashed Potatoes,
Sausages,
Stuffing of Meats,
Do. of Poultry and Game,
Smoked Beef,
Salt Meat,
Peas, Suet, etc.,
Marrow Puddings,
Fried Fish,
Boiled Salmon,
Mackerel,
Shrimp, and other Sauces,
Sprats,
Eels,
Cheese,
Pastry, in all its shapes,
Salads,
Raw Vegetables,
Cucumbers,
Radishes,
Lettuces,
Nuts, Walnuts,
Cocoa-nuts,
Almonds and Filberts.

*A man of health may partake of every one. This array of "forbidden fruit" is only for "invalids."*

There may be many articles of diet omitted, besides new forms are continually being introduced, but the past observations and restrictions apply to those usually of ordinary consumption. Nor is the prohibition applicable to every individual case. I am quite aware that, where general advice is extended over so many pages, the attention of an invalid is very difficult to obtain, and that much time is required to gain over his adherence to what may not accord with his notions, but which, when enforced by the word of mouth from his medical man, he sets about in real earnest to accomplish.

A word or two upon fats; they are all slow of digestion. Mutton Suet takes four hours and a half to digest, and Beef Suet five hours.

Fat, when swallowed, becomes changed into oil by the warmth of the stomach, and floats on the surface of the food therein, until, by degrees, it becomes divided into myriads of little globules, as seen

when water and oil are shaken up together, and then gradually mingles with the mass, and thus becomes digested.

Quantity of Food.—The point settled, would, it appears, conclude the instruction an invalid can need. The secret of living certainly rests much on the quantity, but involves several considerations, and the sick pupil must be a diligent observer.

Every person should regulate the quantity by his feelings. He ought to know when he has eaten enough. It is impossible to say with precision, how much in general is requisite for every individual, for our appetite and capacities vary every day. Prisons and workhouses have their dietaries, but I trust my readers may be at least placed in such situations that they can command what they require, and have judgment sufficient to stop or go on, and take their meals when they please. This fact is beyond dispute, that more maladies are created by over-feeding than under-feeding, and it is also true that the majority of us consume more than there is really any occasion for. Every man in search of health should reflect for himself.

The better experiment is, if, on any given day, uncomfortable feelings ensue after dinner, try the next time to satisfy yourself with one-third less—if the same result follow, try the following day one-half; and if diminishing the quantity still more does not succeed, try a day's fast. Dyspeptics accustomed to feed freely will find their health speedily improved by taking less; let their selection be judicious, eating slowly and carefully what they partake of. Above all, as I have remarked elsewhere, simplicity of living should be strictly observed, and the motto on every plate *should* be, "Temperance is true luxury."

Regularity of feeding is of great assistance to a feeble stomach; a man, to be healthy, should keep time like a clock in all his hygienic duties, and like many of the other daily functions of life, his appetite will, if thus encouraged, always attend him at the accustomed hour.

Our positions in life must modify these proceedings; there is nothing, however, like military regularity. One meal should never succeed another, until the last is pretty fairly digested. Abernethy advised four hours between each. Eating little and often, is a bad plan. Hence lunches and buns, and biscuits, are severally injurious; they spoil the appetite for the more substantial meal, by calling into play—which a simple crust will do—the whole machinery of the digestive organs.

# DISEASES OF THE LIVER AND BILE DUCTS.

## LIVER COMPLAINT.

Liver Complaint is commonly divided into two varieties, namely: *Acute* and *Chronic Hepatitis*. The symptoms of the acute form of this disease, are a sense of weight and pain in the right side and shoulder, or between the shoulder-blades; yellowish or pale complexion; great depression of spirits; loss of appetite; costiveness of the bowels; the urine, or water, is high colored, and deposits a red sediment and ropy mucus. This complaint is most generally accompanied by more or less fever, a dry heat, attended with a dull pain in the right side, similar to that of Pleurisy; great uneasiness is felt in the left side, on lying down, with difficulty of breathing. It is accompanied with a dry cough, and sometimes a sickness at the stomach, with vomiting.

The Chronic form, which means that the disease is of *long standing*, may, in addition to the before-mentioned symptoms, be accompanied with flatulency; pain in the stomach; foul mouth; the tongue much coated; indigestion; skin and white of the eyes of a yellow color; the stools, or passes from the bowels, resembling a clay color; great weakness; and slow progressive emaciation. These symptoms are, frequently, however, so mild and gradual, as to pass without much notice, until at last large abscesses, or collections of matter, are formed by the disease, followed by hectic fever, and the patient sinks without any bursting of the abscess. When the constitution has been good, and the strength sufficient, it often happens that adhesions form between the part where the abscess is, and some part near to it; and the pus, or matter, is discharged by the various passages with which this organ is connected, by vomiting, by coughing, or by purging; and, not unfrequently, by the abscess breaking inwardly. The patient then generally recovers, unless the constitution has been greatly reduced, so that the recuperative powers of nature, assisted by the remedial means, fail to effect a cure. Inflammation of the Liver is much more frequent in warm climates than in cold ones; and, in the former, is very apt to end in the formation of abscess, as before described. Those going to a hot climate, who are predisposed to this complaint, should be careful in diet, etc., for, like other Liver diseases, it is much more likely to attack the free-living than the temperate man. Probably, in no way is the connection between the Stomach and Liver more

strongly manifested, than by the manner in which the latter is affected by the inordinate use of *Spirituous Liquors*. In this case, the spirit being absorbed directly from the stomach by the veins, and conveyed at once to the Liver, acts very powerfully upon it; particularly if the form in which the Alcohol is taken be that of pure spirit, such as Brandy or Whisky. In this instance, if the use of the spirit be persevered in for a length of time, a low form of inflammation is excited in the substance of the glands, which ends in the formation of abscess, produced by its excessive use, and which proves fatal to thousands in this country annually. This great cause of Liver Complaint should be strongly impressed on the minds of all who are addicted to Intemperance, or using spirituous liquors to excess. The bile is formed from the blood which has circulated through the organs within the abdomen, and which passes through the Liver on its way back to the heart. In this passage the bile is separated from it, thereby purifying the blood, and affording a secretion which performs an important part in the process of digestion, and in the body at large. This intimate connection, however, of the Liver, by means of the blood, with the other organs within the abdomen, and particularly with the stomach, renders it extremely liable to be disordered; and, indeed, there are few cases of disorder of the stomach or bowels, in which the Liver is not in some degree implicated, either primarily or secondarily.

The Liver is the largest organ in the body, weighing, on the average, in man, about four pounds. It is situated principally in the right side, in the upper part of the abdomen, or belly, immediately below the diaphragm, and occupies the whole right hypochondriac region, a part of the left, and the upper half of the right epigastric region. Its length is about ten inches, and its width six or seven. The principal part of the right side, called the lobe, is covered by the lower ribs of the right side; and the small, or left lobe, is over the stomach, on the left side of the median line, being bounded on this side by the spleen. The quantity of bile secreted by a man is from seventeen to twenty-four ounces daily; by a large dog, thirty-six ounces; and by a horse, thirty-seven pounds—far exceeding in weight the fæces, or, in plainer language, that which is discharged by an operation from the bowels—and from forty-five to fifty-six times as much as can be found in the fæces by chemical analysis.

Biliary Disorders, arising from a derangement of the Liver, are so frequent, that those who are more or less subject to such Bilious Complaints, by which the general health is greatly impaired, should strictly attend to the prevention, or at least alleviation, of these accompaniments of a diseased state of the Liver; and which, as they are so

much under individual control, have special claim upon our attention. Some individuals are so constituted that they have a much greater tendency to biliary disorders than others; particularly those who suffer habitually from sick-headaches—which arise generally from the presence of bile in the stomach—and from other forms of biliary disorders common to this country, which are generally traceable to improper diet, eating rich food, such as fat bacon, rich gravies, melted butter, pastry, etc., and indulging too freely in spirituous liquors, while, at the same time, very little active exercise is taken; also not unfrequently from the cares of business, by which the mind is over-taxed, and from which the health becomes impaired. We should remember, there must be a certain balance maintained between the secretion and ultimate destination of the bile, if we would retain our health; for the blood becomes overloaded with carbon; languor, sleepiness, headaches, giddiness, loss of appetite, furred tongue, and depression of spirits, are the consequences; and these continue until, at last, the symptoms are relieved wholly or partially by an excessive excretion of vitiated bile, which passes off either by vomiting or purging.

That deficient exercise has much to do with the formation of such a state of the system, is evident from the much greater prevalence of such attacks among females, who take little exercise, than among men; and, indeed, they would be still more prevalent among women, were it not for the monthly relief or courses. Habitual neglect of the skin, by not bathing frequently, assists to impede or stop the excretion of carbonic acid from its extensive surface, and undoubtedly assists the evil.

From what has now been said, it is evident how much the avoidance of biliary disorders is under individual control. The question is, in reality, *not one of medicine*, but of diet and regimen. Medicine may certainly be required; but not by any means to the extent it is so often used. Those persons who are habitually liable to biliary disorders, arising from a diseased state of the Liver, ought most strictly to regulate their diet, avoiding coffee, strong tea, and all stimulants; to use plain food, take plenty of exercise, and keep the skin clean by the frequent use of the bath and friction; as the sympathy between the skin and internal organs, particularly the Liver, Lungs, and Kidneys, is very great; they all sympathize and intimately coöperate one with the other, being alike subsidiary to the grand object of removing the impurities of the blood. This is the reason why, in this state of the system, alteratives, evacuants, or, in plain language, purgatives, are so frequently given; and why decided advantages are often found at

watering places, where sometimes the most salutary and beneficial effects are produced, when medicines have entirely failed.

I have indeed known a change in the mode of living frequently to obviate the necessity of using medicine; and my experience has taught me, that a plain diet and plenty of exercise are much better than a constant repetition of physic, which is merely, in many instances, a correction of improper indulgences.

REMEDIES.— When the bowels are confined, usually termed a *costive* state of the bowels, 1 pint of warm Water, 1 tablespoonful of Salt, and 1 ounce of Glycerine, as a clyster, will give relief; or take a pill of Aloin, Belladonna and Strychnine at bed-time, and in the morning two drachms of Phosphate of Soda. When, from any cause, the languor, sleepiness, furred tongue, etc., give notice of an impending bilious attack, 1 or 2 of the pills should be taken at night, and followed in the morning by a dose of Salts, or a dose of Castor Oil. Extract of Dandelion made into pills with 1 grain of Leptandrin to each pill, one taken every night, is an excellent remedy. From a long practical experience, I have found that the *Dandelion* is a most valuable medicine for this complaint. I have before told you, in my former work, *Gunn's Domestic Medicine, or, Poor Man's Friend*, that there are herbs to cure all diseases, provided by our Heavenly Father, if we would but seek them out and test their virtues. But experiments on this subject have been too much neglected to afford us all the information we need. I have found the use of the Dandelion in the treatment of this disease to be a most valuable remedy. Indeed, I may here observe, that in the treatment of Liver Complaint, the same precautionary remarks as those on indigestion will also apply to this disease — that sick-headache, foul tongue, or heaviness in the region of the stomach, will indicate the necessity of giving a mild emetic of Ipecacuanha; and should there be great heat, inflammation, or feverishness, the use of warm Lemonade, or a dose of Salts mixed in warm Water, and bathing the feet in warm Water, so as to produce perspiration, or determination to the surface, will afford relief. Should the bowels be costive, regulate them with the ordinary compound cathartic pill obtained at any drug-store.

Dr. James Wilson, in the *Medico-Chirurgical Review*, says: "The more the Dandelion is employed, the more certain proofs it will afford of its great virtues"—a fact to which my experience enables me to testify. In my own practice, more than a hundred cases have been cured either by the simple extract of the herb and root, or by taking a teacupful of a strong decoction of Dandelion twice a day. In almost every instance I have succeeded in relieving and restoring those who have used this most valuable plant of the fields.

The Dandelion is diuretic and aperient, and has a direct action upon the liver and kidneys when languid; and is likewise applicable to all derangements of the digestive organs generally. In chronic Inflammation of the Liver and Spleen, in cases of deficient Biliary secretions, and in dropsical affections of the Abdominal Viscera, or belly, it wil be found very beneficial. The inspissated extract is the most efficacious and active form of using this plant, and may be purchased at any drug store; the doses of which are from 10 grains to ½ a dram. I have, however, generally used it in a decoction, as before mentioned. See the "Medical Flora," page 839 for a further and more full description of this valuable plant, medically called *Leontodon Taraxacum*, which, in plain English, means lion's teeth; so called from the indentations of the leaves, which have been fancifully compared to the jaw or teeth of a lion. By the French it is called *Monk's-head.* We ransack the earth for drugs and minerals, and extract medicaments from the deadliest poisons; while around us, and in every field, Nature bountifully furnishes remedies accessible to all. Our most merciful Heavenly Father has given to almost every herb some benignant and healing virtue for the cure of nearly all the diseases that flesh is heir to; and this valuable herb has proved a most important discovery to the *Materia Medica* of this country, as a remedy for the variety of indigestion arising from morbid sensibility or nervous excitement, rendering the use of *Mercury* entirely unnecessary in cases of indigestion, accompanied with, or dependent on an over-loaded state of the liver.

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## JAUNDICE.

This disease is occasioned by some derangement in the secretions of the Liver, by obstructions in the tubes, or the canal, or gall duct, or by the bile becoming so thick that it can not flow freely into the intestines. In this case, the bile not being appropriated to its natural use, is absorbed into the vascular system, and diffused through the blood; which is quickly manifested by the yellowness of the skin, and of the whites of the eyes; by sleepiness; loss of appetite; loathing of food; disinclination to move or stir about; sourness and sometimes sickness of the stomach and vomiting. There is usually felt a load at the pit of the stomach; the urine is of a yellow color, and will stain the linen of a yellow tinge; there is a bitter taste in the mouth; and the

stools, instead of the yellow, bilious color which they naturally possess, are of a clay color; the bowels are costive; and the strength and energy of the body and mind are greatly weakened. A dull pain is generally felt in the right side, which is increased on the application of pressure by the hand. The pulse is not often much changed, either in frequency or strength, unless from some signs of an Inflammation of the Liver.

The most remarkable appearances in this disease, and which can easily be observed, is the yellow appearance of the eyes and skin, the yellow color of the urine, and the white color of the stools. This complaint is not unusually thought to be the Dyspepsia, because there is generally more or less Dyspeptic symptoms produced by it, such as sickness at the stomach, sourness and wind on the stomach, and a slowness of digestion. It is, however, an entirely distinct disease from Dyspepsia, and requires a very different treatment. This disease should not be neglected, and if properly treated and attended to in season, is easily cured; but if neglected, or permitted to run its course, it often produces a permanent, and not unfrequently, a fatal disease.

On dissection of those who have died of this disease, the whole body is found filled with bile. The fatty portions of the body, as well as the bones, muscles and membranes, are found of a deep yellow color. In this complaint, the bile is diverted from the bowels, its natural passage, and absorbed by the veins, and diffused over the whole body.

The bile issues from the Liver, through a duct or passage the size of a goose-quill, which leads into the bowels, a short distance below the stomach, about four or five inches. This little duct or vessel, which is constructed like a vein, and conveys the bile as a vein does the blood, receives the bile from a smaller vessel called the *hepatic duct*, and also from another duct which leads to the gall-bladder, called the *cystic* duct. If either of these three ducts become obstructed or stopped up by the thickened or viscid bile, or by gall-stones, which frequently form in the Liver, or by any thing which irritates these ducts, and causes them to contract, the Jaundice will, to a greater or less extent, be produced. The hepatic duct and the common duct which lead into the intestines, become filled with bile, which, having no outlet, greatly distends them, and causes more or less pain and soreness, sometimes being very painful. This is generally owing to the distension of the gall-bladder and the three bile ducts which I have before fully described to you. When the urine is obstructed or stopped, it produces the greatest uneasiness and pain. This disease

is frequently produced by nervous affections, such as the hysterics, hypochondriacism, and violent mental excitement, when it is called Spasmodic Jaundice; also, by costiveness, and by irregular habits of living, particularly with those who are predisposed to this disease. The bile ducts are closed from the effects of these nervous affections, which finally block up the passages into the intestines. Mental excitement and nervous affections produce this disease in thousands of cases; excessive heat, and marsh miasm, or damp, unhealthy locations, have more or less influence on such temperaments in producing and aggravating this complaint.

Remedies.—No medicines are more beneficial in Jaundice, than *Emetics* occasionally repeated, and followed by gentle purges of Rhubarb, or Epsom Salts. I have, in this disease, given an emetic every other day, for a week or a fortnight; for a simple vomit rarely relaxes the system sufficiently to produce a permanent flow of the bile. The first vomit, give 20 or 30 grains of Ipecacuanha in six tablespoonfuls of Warm Water, followed by a dose of 2 grains of Calomel in quarter grain doses every fifteen minutes, to be followed with a drachm or two of Phosphate of Soda, and it may be well to take half an ounce of this Salt twice a week for some weeks, and whenever there is any yellowness of the eyes associated with constipation. The Warm Bath, if used daily, has a powerful effect in relaxing the bile ducts, and turning the bile into its right channel. The professional remedies are generally: Calomel and Jalap, 10 grains each at a dose, or 5 to 10 grains of Blue Pill, once a day. Keep quiet, and keep the body clean, by bathing or sponging once a day with warm Saleratus Water, and rubbing well all over.

It has lately been discovered, and proved by experience in some of the most obstinate and apparently incurable cases of Jaundice, that the simple remedy of raw Eggs will often effect a cure. Two Eggs are to be taken at once in the morning, in pure Water, and afterward one Egg every four hours.

Dr. Johnson, of London, announces in the *Medical Journal*, that he has succeeded in curing several very severe cases of Jaundice by pills made of inspissated juice of Ox-gall, given in doses of 5 grains, gradually increased to 10 grains, three times a day. This remedy can generally be prepared at any drug-store, or at an apothecary shop.

Females are sometimes affected with Jaundice in the middle months of pregnancy, in consequence of the womb pressing some of the viscera against the gall-ducts. It frequently disappears in the latter months, from the womb changing its bearing and rising higher. At all events, it need not create any uneasiness, as it vanishes after delivery. Medicine is of little use in such cases. Mild laxatives, and lying on the left side, are the only means that need be resorted to.

Many persons, particularly residents of the Southern States and warm climates, are great sufferers from a redundancy of bile destroying the

digestive organs and affecting the liver. Such persons should depend upon prevention more than cure, and make use only of a diet that will prevent the accumulation of bile—for example, Pepper Sauce, Mustard. stewed Fruit of various kinds, and sound hard Cider. Much exercise should be taken to excite a healthy action of the digestive organs. It will be absolutely necessary to abstain from all kinds of greasy Meat, Sweet Articles, Pastry, rancid Butter, and Coffee, as these articles increase bilious affections. Costiveness must invariably be avoided. When a person finds himself laboring under a bilious complaint, he may take an emetic, and afterward a dose of Phosphate of Soda.

Scirrhous enlargement of the viscera is frequently the consequence of the abuse of spirituous liquors, and drunkenness may be enumerated as the cause of this disease in thousands of instances. The drunkard should look into a glass, and there behold the various gradual changes in his countenance. The first stage would present him with redness of the eyes; the second will exhibit the carbuncled nose and swelled face; the third, the obstinate Jaundice, which will probably, in a short time, terminate his wretched career.

It is remarkable that, in many constitutions, mostly in women, Jaundice is often produced by jealousy and anger, and, in men, by mental emotions, such as avarice, or love of money, mental depression, and over-taxing the mind in business. These causes produce obstructions of the bile in the natural channel, and cause derangement of the *liver* and the *stomach*, affecting the mind and the whole nervous system. Persons subject to this disease should be very particular in avoiding all mental depression or uneasiness.

Often times new born babies become jaundiced, it sometimes proving rapidly fatal. Usually, however, the discoloration disappears in a week or two, though it may persist for several weeks, or even months; if the child remains well, it finally disappears.

Jaundice is sometimes a symptom of very grave, but rather uncommon, diseases of the liver—Cancer and Acute Yellow Atrophy.

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## CANCER OF THE LIVER.

Besides Jaundice, persons suffering with Cancer have a rapidly enlarging mass on the right side, progressive loss of flesh and strength, some pain, loss of appetite, and disturbances of the stomach.

Fortunately the condition is quite rare, for it is incurable. The patient should be made comfortable by any means. Death usually intervenes in from three to fifteen months.

Acute Yellow Atrophy is so rare that it scarcely needs mentioning, and this is very fortunate, for it is incurable.

# GALL STONES.

Stones composed of hardened bile form in the gall-bladder. These may vary in size from that of a millet-seed to a pigeon's egg. When they are small, they are usually numerous; there may be several hundred of them. When they are large, they are not so numerous, one, two, up to five or six occurring when they are moderately large. They occur oftener in women than in men, due probably to lacing, pregnancy, and the more sedentary habits of the members of the gentler sex.

Constipation, obesity, excessive food, especially sugars and starches, are predisposing causes.

People sometimes pass through life with a gall-bladder full of gall-stones without their having caused a single moment of discomfort, the stones being discovered by accident at the post-mortem examination, should there be one.

Usually, gall-stones in passing through the ducts to the intestine produce intense pain, called Biliary Colic. This pain starts at the margin of the ribs on the right side, and may extend to the shoulders and the entire abdomen. It is almost unbearable. There is often a chill, followed by fever. Jaundice often makes its appearance.

Finding gall-stones in the stools, washed in a sieve, is positive proof of the presence of them.

Morphine should be freely given for the intense pain. It may be necessary to give Chloroform. The hot bath gives great relief, as do hot fomentations over the liver. The patient should be given Phosphate of Soda, in half-ounce doses, until the bowels move well. The patient should drink freely of alkaline mineral waters. Olive Oil is of no value.

A surgical operation may be required, and is often the best and quickest way of relieving the patient.

# SECTION II.

## DISEASES OF THE ORGANS OF RESPIRATION.

### COLDS AND COUGHS.

Colds are the effect of obstructed perspiration. The causes and symptoms of this disease are so well understood, that little need be said. Oppression of the breast, stuffing, or stoppage of the nose, sneezing, weariness, chills, pain in the head, and cough, are the usual attendants. But few diseases require more attention than this, and yet few are more generally neglected. How many, when they take Cold, consider it of no importance, and let it run on, without reflecting a moment on its consequences! Remember, that neglected Colds are frequently dangerous, and often result in incurable diseases. A Cold produces Cough, then comes pain in the side, Fever, difficulty in breathing, and finally ends in Consumption.

Treatment.—Open the bowels by a dose of Epsom Salts, in a tumbler of warm Water, take a hot Mustard foot-bath, 5 grains of Dover's Powder, and a hot Lemonade, then go to bed and keep well-covered all night.

Use for the Cough the following mixture, which is very pleasant to take, and generally effects a cure: Boil ½ pint of Milk, 1 teaspoonful of Black Pepper, and a small lump of Butter. To be taken hot on going to bed, and to be repeated three or four nights, if necessary.

For Hoarseness.—You will find Horse-radish an excellent remedy for Hoarseness, Cough, Sore Throat, and all diseases of the lungs. Chewing a small piece, the size of the little finger, restores the voice, when so hoarse as scarecely to be able to articulate above a whisper.

For a cough you will find the following valuable and sure to give relief: Codeine, a new preparation of Opium, taken in an eighth of a grain dose.

Or, bathe the feet and legs in warm Water, on going to bed, and take the following pleasant mixture: 1 tablespoonful or more of good Whisky, and 1 small teaspoonful of Butter, Sugar, and Nutmeg. Fill the cup full of boiling Water, stir it up altogether, and drink this as hot as you can, and go, after bathing your feet and legs, to bed, and this will produce an agreeable perspiration, or sweat, and relieve your Cold.

### CATARRH, OR COLD IN THE HEAD.

Catarrh, or Cold in the Head, is an inflammation of the mucous membrane of the nose and throat, caused by taking cold, giving rise to more or

less pain and fullness in the head; sometimes attended with slight fever, chills, or shiverings, frequent sneezing, cough, hoarseness, and running at the nose; sometimes wheezing and difficulty of breathing, and, it may be, pains in the back and extremities. It may be induced by sudden changes of temperature, damp, chilly atmosphere, too light clothing, or any thing that will cause one to take a cold in the head.

Treatment.—Generally very little treatment is necessary. It may be well to follow the same treatment as is outlined for ordinary Colds. Also abstain from eating very much; it may be well to limit one's diet to Milk.

Chronic Form.—From neglect of the acute form, or from repeated attacks, or from other causes, as a sequence of Scarlet Fever, Measles, and the like, Catarrh of the Head may become chronic, and very obstinate, giving rise to severe pain in the head and eyes, watering of the eyes, troublesome cough, excessive discharges of mucus from the nose, frequent sneezing, loss of appetite, emaciation, and the like. The disease in this case has become seated in the mucous membrane of the nostrils, and the treatment should consist mainly of applications to that organ—such as snuffing up alkaline Antiseptics, or spraying the nose with these Antiseptics, using an atomizer. A few Crystals of Menthol dropped in a cup of Hot Water makes a good inhalent.

The bowels should be kept loose, by an occasional purgative; the skin properly attended to, by daily bathing the surface of the body with the warm Alkaline or Saleratus Bath, rubbing well with a dry coarse towel; and the use of diaphoretics, to act gently upon the skin and induce free perspiration. A quarter of a grain of Ipecac may be taken two or three times a day for this purpose.

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## EPISTAXIS—NOSE-BLEED.

This is a condition which rarely becomes serious. Usually it simply indicates a plethoric or full-blooded condition of an individual. It is often a symptom of Typhoid Fever.

Sometimes the bleeding is not checked by the ordinary means of holding the nose tightly, pressing on the upper lip, or putting cold applications to the nose and neck. In such a case, should the bleeding be profuse, it may be necessary to plug the nose with gauze or cotton; this is a delicate operation, and should be left to a medical man.

If there is much cough, use Tinctures of Lobelia and Blood Root, Wine of Ipecac, and Syrup of Balsam of Tolu, equal parts, in teaspoonful doses, several times a day; or any of the more approved Cough Mixtures or Powders. If the eyes are weak, bathe them frequently in cold water. In obstinate cases, take a thorough emetic once or twice a week.

## LARYNGITIS—INFLAMMATION OF THE LARYNX.

This disease usually results from catching cold; it is in fact a cold which has settled in the larynx. It may result from over-use of the voice.

Symptoms.—There is usually a tickling sensation in the larynx. Cold air causes breathing to be painful. There is usually a dry cough and the voice becomes husky, it may indeed be lost for a short time.

Treatment.—The general treatment of a cold is indicated. The voice should not be used. If the attack is severe the patient should be kept in bed, in a room with very moist air. At night, for the cough, Dover's Powder or Codeine may be given. Ice applied outside is often comforting.

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## PLEURISY.

Pleurisy is an inflammation of the *pleura*, or membrane which lines the cavity of the chest. This disease prevails most in the spring season, though it may occur at any other season; and persons of a sanguine temperament, and who are much exposed to the vicissitudes of heat and cold, are most liable to it.

Causes.—Sudden cold coming in contact with the skin or surface of the body; drinking cold water when the body is heated by exercise, and in a profuse perspiration; sleeping out of doors, or in damp places; a check of perspiration from exposure to a draft of cold air, or anything that suddenly obstructs perspiration, may produce Pleurisy. It may also be caused by violent exercise, or by heavy lifting. It often occurs as a complication of other diseases, as Small-pox, Measles, and other eruptive diseases.

Symptoms.—Pleurisy, like most other forms of Inflammation and Fever, usually commences with a chill, or chilly sensations, followed by heat, thirst, and other febrile symptoms. After a few hours the patient is seized with a sharp, acute pain in one side, usually in the region of the short ribs, which gradually extends toward the shoulder-blade, and toward the fore-part of the breast; the pain increases, and sometimes becomes very violent. It may or may not be attended with coughing and expectoration. The matter that is coughed up is generally more or less mixed with blood. The pulse is strong and vibrating, feeling like a tense cord. The breathing movements intensify the pain.

Treatment.—A dose of Salts should be administered at once. Leeches applied over the painful area are of value and may relieve the pain. It may be necessary to resort to Morphine, however, for the pain. As the breathing movements aggravate the condition and increase the pain, the side may be fixed, as it were put in a splint, by means of broad strips of Surgeons' Adhesive Plaster. Rest in bed, and a liquid diet are essential. Later, if there is much fluid, it may be necessary to tap; at any rate it may be well to give Salts every other day, and take as little water as possible. Keep the skin active.

Chronic Form.—Pleurisy not infrequently becomes chronic, in which case the pain in the side or chest is not severe, but is a sort of soreness, with oppression and vague uneasiness, together with short and dry cough, and difficulty in taking a full breath. The pulse is too frequent, and there may be night sweats, with more or less enlargement of the chest.

The Treatment for Chronic Pleurisy should be directed toward the removal of any fluid which may be present. This may require tapping, or if the fluid should contain matter, then a more serious operation must be performed. The bowels should be kept open and the skin active. A Belladonna Plaster may be applied.

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## BRONCHITIS—ACUTE FORM.

This is an inflammation of the lining membrane of the bronchial tubes, or air-passages. Persons who are in the habit of speaking much, or singing, are very liable to it, especially in cold weather, or in changeable climates. It may be either acute or chronic. The *causes* are the same as those of Inflammation of the Lungs, and, where there is a predisposition to it, long and loud speaking or singing may bring it on.

Symptoms.—Acute Bronchitis usually commences with a cold, slight cough, chilliness, oppression and tightness of the chest, and some fever. As the disease advances, these symptoms increase, the breathing becomes more difficult, with a sort of wheezing, and sometimes hoarseness. At first the cough is dry, but after awhile there is a copious secretion of tough, white mucus thrown up, which sometimes changes to a yellowish or greenish color. There is usually severe pain in the head; the tongue is covered with a white, mucous coat; frequent pulse, and dry skin.

Treatment.—In the very Acute Bronchitis of children, if the breathing is difficult an emetic of a tablespoonful of Wine of Ipecac should be given and repeated if necessary.

The patient should have a hot Mustard foot-bath and a hot Lemonade and should then go to bed. An adult may take 10 grains of Dover's Powder. It should be administered cautiously to children.

The cough may be controlled with five grain doses of Dover's Powder every two or three hours.

A Mustard Plaster may be applied.

Chronic Form.—Bronchitis often becomes chronic, as a sequel to the acute form, or as the result of neglecting a cold. It is attended with a troublesome cough, expectoration of a whitish, frothy matter, loss of appetite, a quick pulse, high-colored and scanty urine, and other symptoms more or less similar to the acute form.

Treatment.—A mild emetic, same as for the acute form, given in broken doses. Repeat once a week.

Mild cathartics, sufficient to keep the bowels in a lax condition, are also proper.

Let the patient bathe his feet frequently in warm water, at least every night. Also inhale the warm vapor of herbs, as Hoarhound, Tansy, Catnip, Dog Fennel, and the like.

A quarter of a grain of Codeine may be taken each night before retiring, or 10 grains of Dover's Powder instead.

The skin should be kept active. The diet should be light but nutritious, and some good tonic taken, as the Elixir of Iron, Quinine, and Strychnine. Avoid exposure.

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## PNEUMONIA—INFLAMMATION OF THE LUNGS.

When the substance of the Lungs, or the mucous membrane which lines the air-cells and passages of the Lungs, is the seat of the inflammation, it is called *Pneumonia;* when the membrane which covers or envelops the Lungs (the pleura pulmonalis) is inflamed, it is called *Peripneumonia.* The treatment is about the same in both cases, however, and does not require separate descriptions. Inflammation of the Lungs is liable to attack all classes. At some seasons, and in certain sections of country, it is very prevalent. When it occurs during the winter and early spring, it is by some called *Winter Fever*, and often proves very dangerous.

Causes.—The most common cause of this disease, probably, is from taking cold, which settles upon the Lungs. This causes a *check of perspiration*, which closes the capillary vessels of the skin, and determines the blood upon the Lungs. It occurs most frequently in the winter season and early spring; and persons of robust constitutions and large Lungs, are most subject to it. It may occur, however, and sometimes does, at all seasons of the year. Persons who have had a severe attack of the disease, become thereby more liable to subsequent attacks.

Symptoms.—Inflammation of the Lungs commences with a dull pain in the chest, or in one side of it, if but one lung is affected, with difficulty of breathing—especially if the patient lays upon the side affected—with cough, dryness and heat of the skin, and more or less thirst. At first the pulse is full, hard, strong, and very frequent; but as the disease advances, it sometimes grows weak and soft, but continues very frequent. The cough is usually moist, and the matter spit up is a white, tough, and frothy substance, sometimes streaked with blood. The tongue is coated at first with a white fur.

As the disease proceeds, the face is apt to become of a dark purple; the vessels of the neck become turgid and distended with blood; the breathing becomes quick, short, and very difficult, threatening suffocation. When death takes place, it is generally from an effusion of blood into the cellular substance of the Lungs, thus preventing circulation through these organs, and also occasioning suffocation. It may also prove fatal by terminating in suppuration and gangrene. When suppuration has taken place, it may be known by frequent slight shiverings, an abatement or absence of pain,

and a sense of fullness in the part. The patient can also lie on the affected side without causing much inconvenience. There is always fever; sometimes the temperature becomes very high. The fever usually suddenly drops on the seventh, ninth, or eleventh day. This is termed the crisis, that is, the critical period, which if the patient lives through, he generally recovers.

This is a serious disease when it attacks old people, weak people, or drunkards, usually proving fatal.

When the disease proves fatal, it is generally between the third and seventh days.

TREATMENT.—The patient should be kept in bed. The bowels should be moved with Salts. The diet should be liquid, but nutritious—milk and meat broths. Ten grains of Dover's Powder may be given at night to procure sleep. Morphine should be given for the pain. A Mustard Plaster or Leeches may be applied to the sore spots. If the fever becomes very high, the skin may be bathed with cool water every three or four hours. In the early stages, in full-blooded people, when the breathing is difficult, it may be well to bleed. Later, when the heart becomes weak, it may be necessary to give stimulants, as Brandy, Strychnine, and Digitalis. Last of all, good nursing is far more important than drugs.

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## BLEEDING FROM THE LUNGS—HÆMOPTYSIS.

THIS complaint is usually called Spitting of Blood. It consists in coughing up small quantities of bright red blood, sometimes quite frothy, and is usually preceded and accompanied by heat and pain in the chest, irritation in the windpipe, and more or less saltish taste in the mouth. Hemorrhage from the Lungs may easily be distinguished from that of the Stomach, as in the latter case the blood is vomited up, usually in large quantities, of a much darker color, and more or less mixed with the contents of the Stomach; whereas, the blood from the Lungs is of a florid color, is thrown up in small quantities, by coughing or hawking, and is more or less mixed with a frothy mucus and bubbles of air.

CAUSES.—Bleeding from the Lungs is, as a matter of course, owing to a weakness of those organs, or to the tender and delicate character of their structure, allowing of easy rupture of the air-cells and small capillaries. It may be brought on by over-exercise and violent exertion, as running, jumping, wrestling, singing loud, or blowing on wind instruments. Also by Plethora, Hectic Fever, Coughs, and Colds upon the Lungs. It may also be induced by the suppression of some accustomed discharge, particularly that of the Menses. It most usually occurs in persons with narrow chests, high shoulders, and who are otherwise delicately formed, and of a sanguine temperament.

Spitting of Blood is not always to be considered a primary disease; nor

is it necessarily connected with Consumption. It is often only a symptom of some other disease, as Pleurisy and Lung Fever.

Occasionally, the blood thrown up is of a dark or blackish color; this, however, only shows that it has remained a longer time in some of the air-passages, before being thrown up. The complaint is not attended with any danger, where it is not connected with Consumption, or where it leaves no cough or other affection of the Lungs. When it occurs in persons of a weak, lax fiber, and delicate constitution, it is more difficult to cure.

TREATMENT.—One of the best and most common remedies for Spitting of Blood, is Salt. A teaspoonful should be taken, dry, and repeated occasionally. This, in most all mild cases, will be found sufficient, as an internal remedy. External measures should be made use of, as bathing the feet in Warm Water frequently, and applying the Sponge Bath to the whole body—warm or cold—with friction, in order to equalize the circulation, and thus prevent too great a determination of blood to the Lungs, which might cause the difficulty to grow worse.

If the bleeding is very serious, that is, not readily checked, and large quantities of blood are coughed up, the patient should be kept as quiet as possible, and brought under the influence of Morphine immediately.

The head of the bed should be elevated. Cold applications should be made to the chest. Little more can be done, and Consumptives often die as a result of severe Bleeding from the Lungs.

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## CONSUMPTION.

IN THE short space of a few pages we do not anticipate that justice can be done to a subject of such extent and importance as the one before us. If, by our suggestions, we may be able to point out danger before it is too late; if we shall succeed in warning the unsuspecting, or arousing the careless, something will have been accomplished to ward off the inroads of an enemy more fatal than any among us—more fatal because more common, and hence less feared. In Consumption, as in many other diseases, life can be prolonged, and not unfrequently cured, by averting its causes. When once rooted and settled for any length of time, the sufferings may be alleviated by the watchful care of friends, the efforts of science, and change of climate; but generally, when Consumption is not relieved in its first stages, or, in other words, when it becomes fully and deeply seated in the lungs, as far as my experience has gone, I have found, with some few exceptions, remedies to prove alike fruitless and unavailing.

What a train of melancholy reflections arise in witnessing the slow but certain decay of the young, the bright, and the beautiful, whose charms delight us for a moment, and then fall a prey to that dreadful scourge, Consumption!

This disease depends for its existence upon Art more than Nature—

upon the abuses of civilization rather than upon climate. In highly civilized countries, like England, France, and the United States, Consumption is found in the mansions of the wealthy, and the cellars and hovels of the destitute, and in both it is the result of exhaustion. The luxurious are prematurely worn into Consumption, while the destitute are starved with noxious air and frozen into it. Excessive toil is more debilitating than excessive living. As a proof of it, we may instance a fact which we have often noticed, that old people, who have been comparatively free of disease, frequently die of Consumption. The constitution being worn out, or, in other words, the vital powers exhausted, the lungs, being one of the weakest portions of the body, imbibe disease, and death closes the scene.

Very few persons, however, are left to die of old age. Men wear themselves out very fast in this country. Some do it by drinking intoxicating liquors, some by smoking or the excessive use of tobacco, some by inordinate mental labor, some by ambition to make money, some by over-feeding, and some by other causes as little suspected.

Women, too, exhaust life by a neglect of nature's laws. Excessive novel reading, sedentary habits, tight dressing, eating confectionery, late hours, exposure in thin dresses and shoes, too early marriages, a neglect of exercise and pure air, and a score of other errors arising from fashion, vanity, or ignorance, all of which destroy annually thousands of females, who, by thus exhausting the vital powers and weakening the lungs, fall an easy prey to Consumption. According to a law of animal life, all morbid action falls upon the weakest part of the system, and breathing noxious vapors, whether in hovels or palaces, will render the lungs weak.

If, then, the digestive powers are disordered by any excess, or weakened by privation, whereby the whole vital energy is impaired, why should we wonder if diseased action fall upon the lungs, already impaired by this general diminution of vital energy, and also by the direct inhalation of noxious vapors, from confined, ill-ventilated rooms, shops, offices, counting-houses, cellars, and all places where there is a deprivation of pure or fresh air!

Hereditary Predisposition.—These are words that can not be misunderstood. They speak the feelings of experience, of unfettered reason, and observation, which fully confirm that solemn truth, "the sins of the father may be visited upon the children unto the third and fourth generation." The doctrine of the transmission of morbid peculiarities through successive generations, is as old almost as that of Medical Science itself, and hid, we might almost say, in the regions of the past, we find it recognized in the laws regulating the economy of the domestic relations. How such peculiarities are generated and per

petuated, philosophy has failed to teach us. We know that "Great are the mysteries of Providence," and "His ways are past finding out." A long list of the most fearful might easily be given, but we will name only a few: Consumption, Madness, Epilepsy or Fits, Cancer, Scrofula, etc. They are all well authenticated, and worthy the study of those who feel the interest natural to parents in the happy establishment of their children, as also of the practical advisers of those personages whose offspring are destined to fill the highest places among men. Intermarriage of blood relations is a fruitful source of disease. In Fredericktown, Maryland, for several generations back, three families, of wealth and respectability, have intermarried, until there can not be found a sound man or woman. One has sore eyes, another scrofula, a third idiotic, a fourth blind, a fifth deformed, a sixth subject to fits, with not one of the number exempt from physical or mental defect of some kind. Yet these families continue to intermarry with each other, with these living monuments constantly before them!

A careful examination of one hundred towns in Massachusetts, brought to light five hundred and seventy-five cases of idiocy. Of these, four hundred and twenty were idiots from birth, and of this number they obtained certain and undoubted information respecting the parents of three hundred and fifty-nine. In all but four of these examined cases, it was found that one parent or the other, or both, had, in some way, departed from the laws of life and health, being either scrofulous, predisposed to brain affections, intemperate, grossly sensual, or unnaturally intermarried with blood relations. The lessons taught by such disclosures should prove a warning.

The report of Dr. Brigham, of the New York Lunatic Asylum, states, as the result of careful investigation, that insanity is more likely to be transmitted by the mother than by the father, and that mothers are more likely to transmit it to daughters than to sons, while fathers most frequently transmit it to sons. If we will, however, reflect, and examine into the subject minutely, instances are innumerable; but we purposely close the book of record, as regards hereditary peculiarities.

Upon a peculiar physical conformation, which we will notice briefly, some reliance has been placed as indicating a predisposition to Consumption. The fair, delicate whiteness of some parts of the face, contrasting strongly with the soft, vivid blush of the cheek—the blue, bright eye—fair, light hair—the projecting, enlarged upper lip—the conformation of the body generally, with the flaccid muscles, have long been associated with the predisposition to Consumption. There are, however, exceptions to this rule; for, at times, individuals of an entirely opposite general appearance are attacked and destroyed by

this universal plague. Let me, then, again urge you to take *exercise* and *fresh air*. Fresh air, under any circumstances, is of vast importance. It gives energy to the mind and body. How many locked up and confined in cities pant for the fragrance of the invigorating breeze! What has not fresh air, or, as it is called, when quitting the crowded city, change of air, effected? How many has it not snatched from the jaws of death? How many has it not saved from the tedious pilgrimage of sickness, and spared from desolate loneliness? The apparently consumptive, the melancholy hypochondriac, and the waning and harassed dyspeptic, it has restored to former liveliness and joy. The first gush of air revives the expiring breath. Bed-ridden invalids have been known to rise and walk the day following a removal into the country. Apart from local peculiarities and advantages, fresh air, in every instance, is beneficial, as the daily experience of all can substantiate.

The present facilities for obtaining fresh air far exceed those of former times, and any one who does not avail himself of them, must be entirely regardless of his own health, or that of his family. The railroads, omnibuses, steamboats, afford cheap facilities for exercise, and of obtaining fresh air, the enjoyment of country recreation and change of scene, thereby relieving the mind, which, I have before told you, have a most powerful influence upon health. Therefore, if you wish to avoid Doctors, Physic, Consumption, Dyspepsia, Nervous Diseases, and a thousand other ills that flesh is heir to, live temperately, take regular exercise and pure air; let your dress be suitable to the changes of the weather, and avoid taking *physic* as much as possible, for no sensible doctor takes much medicine himself, but it is his interest to prescribe it. The temperate and regular rarely suffer from this disease, save those on whom it is more or less conferred by their ancestors. The intemperate and irregular suffer from this and a variety of other diseases, which I have before mentioned, in every State of the Union, for we are more inclined to seek the causes of this disease in *habits* than in *climate*. Therefore, the best preventives of Consumption are pure air, and a moderation in every thing, physical or intellectual. The Quakers, I have observed, are seldom victims of Consumption, and I ascribe this general exemption to general freedom from excesses of body or mind.

Before I close this important subject, as a preventive to those predisposed to Consumption, or persons of delicate health, let me advise you to wear thick-soled shoes in bad weather, for the feet are electric points of the system. By all means avoid gum-elastic shoes, because they keep the feet too warm, confining the perspiration, and derange the proper action of the skin, producing debility and disease, by pre-

venting the sweat from escaping from the pores. In dress and diet, we can only say that whatever makes you *feel best*, of which experience must be the test, is the best preventive of Consumption.

Coughing, in Consumption, is an annoying attendant on this distressing disease, and we are induced to present the circumstances in relation to the case of a gentleman who, after long confinement, escaped from the fangs of this complaint.

"You speak of coughing continually. Let me suggest the query, whether this is not unnecessary and injurious. I have long been satisfied, from experience and observation, that much of the coughing which precedes and attends Consumption is *voluntary*. Several years ago, I boarded with a man who was in the incipient stages of Consumption. I slept in a chamber over his bed-room, and was obliged to hear him cough continually and distressingly. I endured the annoyance, night after night, till it led me to reflect whether something could not be done to stop it. I watched the sound which the man made, and observed that he evidently made a voluntary effort to cough. After this I made experiments on myself, and found that I could prevent myself from coughing, sneezing, gaping, etc., in case of the strongest propensity to these acts, by a strenuous effort of the will. Then I reflected that coughing must be very irritating and injurious to the delicate organs that are concerned in it, especially when they are in a diseased state. What can be worse for ulcerated bronchia, or lungs, than the violent wrenchings of a cough? It must be worse than speaking. A sore on any part of the body, if it is constantly kept open by violent usage, or made raw again by a contusion, just when it is healing, (and of course begins to itch,) will grow worse. Certainly, then, a sore on the lungs may be expected to terminate fatally, if it is constantly irritated and never suffered to heal; and this, it seems to me, is just what coughing does for it. On the strength of such considerations as these, I asked the man if he could not stop coughing. He answered no. I told him what I thought about it, as above. He agreed to make a trial; and on doing so, he found to his surprise that he could suppress his cough almost entirely. The power of his will over it increased as he exercised it, and in a few days he was mostly rid of the disposition to cough. His health, at the same time, evidently improved. When I last saw him, he was in strong hopes of getting well."

This occurred eighteen years ago, and the man is now an active business man, averring that he had not been sick since.

It has been the fashion to doubt whether tubercles of the lungs, or, in plainer language, when ulcers or sores are formed in the lungs, whether they are ever cured. But these cases are now better understood

and far more hopeful. Both the experience and the testimony of many trustworthy witnesses, as well as my own observation, have assured me of the frequent curability of this disease. In a large percentage of all post-mortem examinations where Consumption is at all prevalent, old scars, healed up ulcers, are found in the lungs. The people once having had Consumption, recovered, and died from some other cause. *Consumption in a certain percentage of cases, if recognized and treated early enough, can be cured.*

We close this subject by showing, in a few words, the three principal predisposing causes of Consumption—hereditary formation, lack of out-door exercise, and debilitating diseases, such as Pneumonia and Dyspepsia.

The lungs, when moderately distended, contain, at a medium, about twelve pints of air. As one pint is inhaled at an ordinary inspiration, and somewhat less than the same volume is expelled at an ordinary expiration, there remains present in the lungs, at a minimum, eleven pints of air. There is one act of respiration to four pulsations of the heart. In good health, there flows to the human lungs every minute nearly eighteen pints of air (besides the twelve pints constantly in the air vesicles), so that in the space of twenty-four hours upward of fifty-seven hogsheads of air pass through the lungs. Air once breathed is, by passing through the lungs, deprived of the healthful part—the oxygen—and becomes little less than unmixed poison—the nitrogen only remaining.

Symptoms.—Consumption often begins with a dry, hoarse cough, which gradually increases and continues for months, with more than a usual degree of heat, pain and oppression of the chest, after moving, or any quick motion of the body. The cough increases or continues, attended with the raisings of purulent matter, sometimes streaked with blood. The flesh of the patient next begins to waste away, and he finally becomes greatly emaciated, dwindling away, often, to a mere skeleton. Rapid loss of weight being very characteristic.

Hectic Fever.—Another very common symptom of Consumption, or rather attendant upon the disease, is Hectic Fever; sometimes but slight at first, but as the disease advances, it often becomes severe and exhausting. This fever is not constant through the whole day or night, but generally comes on in the morning and abates about noon; a little chilly at first, then hot, thirsty, and restless, followed by perspiration or sweat. It returns again in the evening or at night, and goes off with what are known as Night Sweats. Upon each cheek of the Consumptive person there will be, during the fever, a bright red spot, nearly circular; sometimes only on one cheek. Hectic Fever is merely symptomatic, that is, it is but a symptom of some other disease, generally that of Consumption, but may also attend some other wasting diseases; therefore, we cannot hope to cure it without first curing the primary disease of the Lungs. Tonics should be given along with the Cough Medicine, and proper attention paid to the skin;

bathing the body with water to which a little common Salt has been added will be good. Internally, the patient should take two or three times a day a little water made sour with Nitric Acid. This will be good for both the Night Sweats and the Fever.

In all diseases of the Lungs, the instrument called a *Stethoscope* should be used. By the use of this instrument, which conveys the sound produced in breathing to the ear, you can most certainly tell the difference between a healthy person and one whose lungs are diseased. For when a tubercle exists in the lungs, and has discharged its contents, the air, in passing in and out of the cavity which remains, produces a peculiar sound, which the French call *râle*, or, in plain English, a deep, hollow kind of rattle, which you can easily distinguish by placing the ear upon the chest, but more distinctly by the Stethoscope. Whenever you hear this squeaking sound, or rattle, it has been found, after death, that an ulceration had existed, and that the sound was produced by the passage of the breath in and out of the cavity which was left after the matter of the ulcer or tubercle had been expectorated, or thrown up. Then by using this instrument, the case may be decided with a great degree of certainty. Many persons who, for a long time, have been greatly distressed in mind from believing they had Consumption, have been relieved from all serious apprehensions or fear by the intelligence conveyed by the Stethoscope. Therefore, where much anxiety exists as to the nature of the disease, or its actual progress, the person should submit to an examination, and this valuable and simple instrument will at once decide the nature of the case.

The most positive sign of Consumption is the finding of the tubercle bacilli in the sputum. The discovery of these removes all doubt.

The tubercle bacilli is the germ which really causes the Consumption, and without this germ there would be no Consumption.

This germ, once getting a lodging in a person's lung, grows and multiplies and causes the abscess to form. This germ cannot get a lodging in a normally strong lung; it can only grow in one that is weakened by disease, one that is not sufficiently exercised or is supplied with bad air, or one that is naturally weak because its owner had parents with weak lungs.

One does not inherit Consumption; they simply inherit a lung in which the tubercle bacillus can get a foot-hold and grow.

Consumptives expectorate large numbers of these bacilli each day, and so if the sputum is not burned it drys, the germs become mingled with the dust, and are breathed by others who may develop Consumption, *so that Consumption is catching.*

See the chapter on Bacteriology for further description of the tubercle bacilli. Page 610.

Remedies.—Above all things, avoid active medicines, or the too frequent use of them. Remember that the best Tonic or Strengthening Medicine is proper diet, frequent exercise in the open air, change of climate, or a sea voyage. Do not put off these things until the system is worn out,

and wearied down by exhaustion or weakness. The thorough use of these three remedies is to be attended to in the first stages of this disease, and is not to be put off until the physician finds that there is no hope, when he recommends, by way of getting rid of the responsibility of the case, a change of climate or a sea voyage. A consumptive family should move from the locality to which they have been accustomed. Louis mentions the case of a family who lost sixteen children from this disease, but a seventeenth, sent from his native country at an early age, escaped. A child, either of whose parents may be consumptive, should, from birth, be nursed by a healthy woman, in a pure air—a dry and elevated situation, if possible. Care should be taken as to its diet, proper clothing, exercise, and the skin carefully attended to from the first, by cold sponging and friction, so as to gradually accustom the system to withstand and be fortified against the various changes of atmosphere. A high, dry locality is the best place for people suffering with lung difficulties. Many such places are to be found in this country, such as Colorado, the mountains of South Carolina, New Mexico, Montana, and other places.

If the disease is far advanced no attempt should be made to take the patient away from home.

Remedies for Consumption.— The *Boston Medical and Surgical Journal* makes the following remark on Dr. Stone's new remedy for Consumption:

"A gentleman of the neighboring city of Charlestown, whose son was considered in a hopeless state from the diseased condition of the Respiratory Apparatus, was induced to administer Dr. Stone's medicine, the Phosphate of Lime. That procured at the shops appeared to him to be imperfectly prepared, being coarse and otherwise objectionable. A purer article was prepared, especially for the occasion, reduced to an impalpable powder, and 10 grains were administered three times a day, followed by a swallow of Cod-liver Oil. No material change was discoverable in the patient for two weeks. Suddenly, as it were, a fixed pain of long standing in the chest then abated, the sleep became refreshing, the appetite improved, strength returned, and from being moved about the apartment reclining on an invalid chair, he is now daily riding, on an average, ten miles on horseback, facing the wind, and breathing the cold air with impunity. This is a synopsis of a case related by a grateful parent, who would be glad to have others, under similar circumstances, make an effort with the Phosphate combined with the Cod-liver Oil."

Much relief is often experienced from Inhalation, or, in plain language, breathing various articles in steam. I have no doubt that a certain remedy will at last be discovered, in the form of a gas or vapor, breathed into the lungs, operating locally or outwardly upon the ulceration or sores. The tubes, or inhaling vessels, which are usually very simple, may be purchased at any of the drug-stores, in any of our cities. The patient breathes through the tube, thereby fully expanding the lungs, at each inspiration.

It is to be used two or three times a day, from twenty to thirty minutes at a time. The articles chiefly used by inhalation are vapor or steam from Tar, Resin, or simple hot Water, in which many simple herbs, mixed, will be found beneficial, where the breathing is difficult, with difficulty of expectoration; or in Cough the vapor of boiling water, into which put a few drops of Sulphuric Ether, or ten or a dozen drops of Laudanum, will frequently afford relief.

Anxious to afford every new remedy that may tend to relieve this terrible malady, we have taken this from the *London Medical Journal*, indulging the hope that it may be successful, as it has been in many cases in Europe:

"An officer in the British service, resident in the East Indies, had been stricken with the fatal disease, and was reduced by it to nearly a skeleton; his friends looked upon him as a doomed man, and he himself had given up all hopes of a long continuance of life. One morning, while crawling about his grounds, he accidentally went into a shed where a man had been bottling some wine. At the moment of his entrance, some Resin was melting to seal the corks. It could not be otherwise than that those within the room should inhale the smoke arising from the Resin. To the surprise of the afflicted one, his respirations becoming free and unobstructed, it instantly occurred to him that the relief he experienced was produced by having inhaled the Resinous smoke. He remained better during the day, and without consulting his doctor, repeated the experiment in his sleeping room. That night he slept soundly—a blessing he had not known for years. Twice a day for a week did he continue his experiments, and with increased success. He then mentioned the affair to his medical adviser, who was equally surprised with himself at the improvement of the patient's health, and advised him to continue the inhalations night and morning. In the space of three months his cough subsided, and his appetite returned. In six months his health was so improved that he contemplated returning to his native country; he delayed, however, doing so until a year had expired. Still persisting in his newly-found remedy, his health was completely restored, and he was once more a sound man." In this story we may find a clue to the origin of the use of Creosote for the cure of Consumption. Creosote, some times known as Oil of Wood, or some product made from it, as Benzoyl, is the great stand-by, in conjunction with Cod-liver Oil, of many physicians for the treatment of Consumption.

Consumptives after taking this for a time acquire an ability to bear very large doses per day; usually they commence taking a drop or two in whisky three times a day; by gradually increasing the number of drops from day to day, they become able to tolerate twenty, thirty, even forty or more drops a day. It may be taken with the Cod-liver Oil.

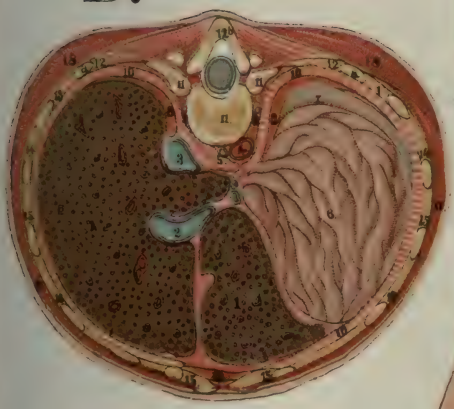
The *London Medical Gazette* contains an article from the pens of Dr. Hastings and Mr. Robert Stokes, surgeon, descriptive of a remarkable operation for the cure of Consumption, by the perforation of the cavity of the Lungs through the walls of the chest. It consists in making an opening

**D**—Transverse section through the abdomen, when frozen. (Close to the diaphragm).

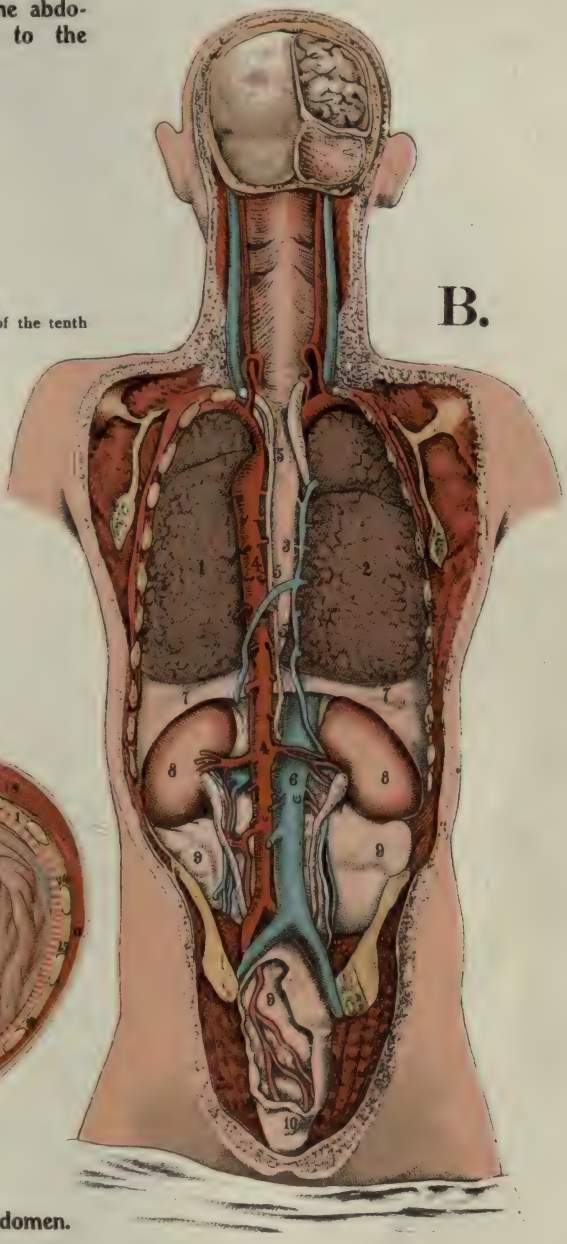
1. The liver.
2. The portal vein.
3. Inferior vena cava.
4. The aorta.
5. The thoracic duct.
6. The stomach.
7. The spleen.
8. The supra-renal capsule.
9. The sympathetic nerve.
10. The diaphragm.
11. The eleventh thoracic vertebra and its ribs.
12. The tenth rib (*a*) and the acantha (*b*) of the tenth vertebra.

13–16. Ninth eighth, seventh and sixth ribs.

17–19. Muscles.



**B.**



**B**—Viscera of the chest and abdomen. (As seen from the back).

1. Left lung.
2. Right lung.
3. The oesophagus.
4. The aorta.
5. The thoracic duct.
6. Inferior vena cava.
7. The diaphragm.
8. The kidneys.
9. The peritoneal cavity.
10. Lower end of the rectum.

into the ribs between the cavity which forms in the Lungs during the latter stages of Consumption. The immediate effect of the operation (which requires only a few seconds for its performance, and which causes but slight pain) in the case in question, was the dimunition of the frequency of the patient's pulse, which fell in twenty-four hours from 120 to 68; freedom of respiration which had been a very distressing symptom; loss of cough and expectoration, both of which had been very severe. This operation, which has established the possibility of curing this hitherto fatal disease, appears to have been completely successful. The report of the condition of the patient, a month after its performance, was, that he was rapidly regaining his flesh and strength, whilst his respiration had become natural, and his pulse had fallen to 80, and his cough and expectoration had wholly ceased.

Cod-liver Oil.—This species of oil is now considered a very valuable remedy. There has been so great a call for it, that the oil of every fish caught has been sold for it. The principal diseases for which this is prescribed and taken are Consumption and Tuberculosis generally. We have no doubt that in many cases where there are Consumptive symptoms, relief has been obtained by the use of this medicine. Possibly a free use of any other fish oil might have produced the same effect. The accounts that we have read in narratives of voyages among the Esquimaux Indians, who live on seal and blubber, and the fact that the Indians of the Penobscot and Quoddy tribes on our coast, are more healthy and fat during the fishing season, when Porpoise Oil is plenty, tend to corroborate this opinion.

We have seen some accounts of the use of other kinds of fish oil, instead of the Cod Liver, when that particular oil could not be conveniently obtained, which stated that equally as good effects followed its use. Some contend that in the Cod-liver Oil may be found Iodine and Bromine, two very powerful remedial agents. It may be so; but if this be the case, the benefit derived from them must be attributed to homœopathic doses, for there is not generally enough of them to act otherwise. One mode of the action of this and other oils is undoubtedly by nourishing the patient. They contain large quantities of Carbon, which become transformed or assimilated in the system of the patient as fat, and thereby improve his appearance. We would not deter any persons from making free use of Cod-liver Oil, if they wished, but at the same time would advise them not to despair, if this species of oil cannot be obtained. Try Porpoise Oil, or any fish oil—it will nourish, if it does not cure.

The taste of Cod-liver Oil is completely disguised by masticating a morsel of dried Orange-peel before and after swallowing the dose, or by the use of a lump of Brown Sugar.

The most effectual remedy in the relief of cough is Opium. In cases where there is tickling, dry, hacking Cough, adults should take twenty to twenty-five drops of Laudanum every night at bed-time. If this does not

remove the Cough and regulate the breathing, Codeine in quarter-grain doses will be found most valuable. It is made from Opium.

The question has been often asked, can Consumption be communicated from one person to another? It can when there is close communication of those predisposed to this disease, by constantly breathing, or leaning too much over the person affected. By all means avoid sleeping, if possible, in the same bed.

The belief that Consumption is seldom cured, I know to be superstitious and untrue. There is no more difficulty in the healing of a *tubercle* in the lungs, than of the healing of a tubercle or sore in any other part of the body; provided the lungs and general health are in the right condition. And I have seen hundreds who appeared as mere skeletons, for whom I had not the slightest hope of a cure, entirely restored to health, by using the treatment before mentioned, avoiding all active or strong medicines, using proper food, and frequent exercise in the open air. For I assure you, from a long experience in my profession, that thousands have died from a want of invigorating exercise and pure air; the nervous system and the mind being worn out by incessant calls upon the senses, and a change of climate having been put off from day to day.

I have heard many who, in the last expiring breath, have said: "Oh, that I had but attended to these instructions earlier!" Then let me advise you visit in due time the shores of the "deep, deep sea," hear the music of its restless waves, breathe pure air from its healthful bosom, and be, we trust, through the blessing of God, restored to health.

I cannot urge too strongly the necessity of pure air, and a change of climate in the early stages of this disease. The poison of bad air, and its injurious effects upon the system, destroy thousands. The health of our women and the constitutions of their children are injured by it. A healthy person takes in about a pint of air at a breath; he breathes a thousand times in an hour, and requires about fifty-seven hogsheads of air in twenty-four hours. Air once breathed is, by passing through the lungs, deprived of the healthful part—the oxygen—and becomes little less than unmixed poison—the nitrogen only remaining; therefore, get pure air to breathe.

There is some confusion in the minds of many people between the words Consumption and Tuberculosis. The word Consumption usually is understood to mean Tuberculosis of the Lungs, while Tuberculosis is a disease of any part of the body caused by the germ—the tubercle bacilli.

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## ASTHMA.

Asthma is an affection of the chest, known by the patient's distressing difficulty, almost amounting to inability, of breathing, or power to

inspire sufficient air to fill the lungs. Asthma, although a nervous or spasmodic affection, is very frequently connected with actual changes in the lungs themselves. Asthmatic Fits, or Paroxysms, come on at regular intervals. For several days, or rather nights, successively, the patient is regularly attacked; then a considerable time may elapse before he or she again suffers. Some persons are never entirely free from the complaint; for there is generally some slight oppression of the breathing, liable to be increased or aggravated by slight causes, such as changes in the weather, peculiarity of situation, errors in diet, anxiety, fatigue, mental excitement, etc., many of which induce or bring on a paroxysm of Asthma in the predisposed. The Asthma generally attacks the patient at night after the person has retired to rest; but it sometimes comes on in the day-time. A want of breath is commonly the first notice which the person has of its attack; he is compelled immediately to rise up in bed, when he feels great oppression, tightness across the chest, and a want of more air; the breathing becomes laborious, accompanied with a wheezing noise, which can generally be heard over the whole room; and speaking is very difficult. There is often a disposition to cough. Frequently, from want of breath, the lips and face become a purple color. Notwithstanding, however, the frightful appearance of the countenance from the disease, it rarely, if ever, proves fatal. The patient feels a choking sensation, but toward morning the breathing becomes more free, and the sense of suffocation gradually passes off. Frequently, a little phlegm or mucus is coughed up; this affords relief, and then the exhausted sufferer falls asleep. In most cases of this disease, the pulse is frequent and small, and there is considerable heat and desire for drink; the urine, in the beginning, is pale and increased in quantity, but, on the fit subsiding, becomes high-colored and deposits a sediment; and the face becomes generally pale and shrunk. Confirmed Asthmatics have a distressed cast of countenance, and acquire a peculiar rounding or elevation of the shoulders, perfectly characteristic. Asthma may occur at any period of life, but is more general about middle age. Men are more commonly the subjects of it than women.

This disease, though a very distressing one, is not dangerous in itself, further than as it tends to lay the foundation of other affections of the lungs or of the heart. I have known many persons laboring under this complaint remain comparatively free from distress during the day, but as soon as night approached, the wheezing, suffocation, sense of tightness in the chest, and difficulty of breathing, returned, and continued as long as they did the night before. When there has been a considerable respite during the day, some little sleep may be obtained in the fore part of the night, but morning generally brings

back the suffocating oppression of the disease; continuing in this manner, generally, for three or four days before much relief is felt. The sooner expectoration commences, the shorter will be the continuance of the disease. Relief is quite certain as soon as a free secretion of the mucus of the lining membrane of the lungs takes place. The Asthma then gradually goes off. Every day, as the expectoration increases, the disease subsides, growing less violent every night until it entirely disappears.

Where a person has once, however, been the subject of this disease, he is sure to be more or less tormented with returns of it through life. In some instances of this complaint, there will be no expectoration of phlegm. In such cases it is called the Dry Asthma. Where the disease is resolved without the mucous secretion, such instances are called Spasmodic Asthma. In Asthma there is generally some degree of fever, which is shown by the tongue being furred, increased heat, thirst, and loss of appetite. In many instances of this disease, persons afflicted will be about their usual occupations, through the day, and feel nearly as well as usual; but suffer severely with these paroxysms during the night.

Many persons are born with a predisposition to this disease, in the same way that many are to other disorders. Sudden suppressions of the perspiration is probably the most frequent cause. Cold and wet feet; damp rooms; exposure to the changes of the atmosphere; and all excesses in eating and drinking, will produce this disease. The disturbance of the passions and feelings, also produces it. Some persons experience a return of it every fall, on the appearance of cool weather and frost; others will have it in the spring, and others again in the summer-time. Either cold, heat, or moisture, appear to produce it equally alike.

Remedies.—The effects of situation and of atmospheric peculiarity upon Asthmatics, are the most varied; some who are afflicted with this disease, can breathe freely in clear dry air, while others are temporarily relieved by a damp atmosphere, or a warm room. Some individuals, who are never free from Asthma in some situations, lose their attacks as soon as they remove or make a change. These are peculiarities of which all persons who are afflicted with this complaint should take notice.

The habitual Asthmatic, however, soon becomes aware how much his freedom from paroxysms of the disease depends on the state of his general health, and particularly on that of the digestive organs. He can not always avoid atmospherical vicissitudes; but he can, by temperate living, exercise, attention to the bowels, and to the functions of the skin in particular, pass long intervals without an attack

Sponging the chest and shoulders every morning with Cold or Salt Water, and friction being afterward made with a coarse towel or brush, or a hair glove, is a practice to be highly recommended, provided no other predisposition forbids the use of this remedy.

Asthma is one of those diseases for which much may be done by well-timed and well-directed domestic management, proper care and judgment, attention to the change of the paroxysms, and to the constitution of the patient; likewise to the various remedies adapted to this disease; for what gives immediate relief to one person, totally fails with another.

One of the principal causes of this disease, and one that should be strictly guarded against, is external cold, that unrelenting enemy to the nervous system. As cold proves hostile to all nervous parts, so it is found to be in an especial manner most inimical to the chest.

Treatment.—During an attack, a few inhalations of Chloroform will usually give relief. A few drops—one or two—of Amyl Nitrite, on a cloth held over the face and inhaled, may relieve when Chloroform fails. It may be necessary to give Morphine, and an emetic may be tried. Various cigarettes of Belladonna, Lobelia, and Stramonium are on the market, and are often useful, or the leaves of these drugs may be burned in the room and the smoke inhaled.

To ward off future attacks, 10 grains of Iodide of Potassium may be given three times a day for a while, or preceding an expected attack.

In relation to diet, Asthmatics should be cautious as to their food: sugars and starches should be avoided; let it be simple, light, and nutritious; avoiding stimulants, with the exception of Coffee. Their rooms should always be well-ventilated, and quietude and repose particularly attended to. Avoidance of the sudden changes of the atmosphere should be enjoined. These important rules, if properly attended to, will be found greatly beneficial, in all cases, to Asthmatic patients in general.

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## HAY FEVER.

Hay Fever is a disease occurring in spring and fall. Usually it is much like an ordinary cold in the head; sometimes there is fever and headache and much depression. Sometimes it is associated with typical asthmatic attacks.

The pollen from flowers — roses, and from hay, and perhaps rag-weed, in association with a nervous element are probably the causes of this disease.

Treatment.— Tonics, especially two or three minims of Fowler's solution of Arsenic, or five minims of dilute Phosphoric Acid three times a

day may be taken. Change of climate, especially to uncultivated mountainous districts, may prevent occurrence of the disease. Local treatment of the nose with Washes and Cocaine often give relief.

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## EMPHYSEMA.

THIS is a disease in which the lungs are over-distended. The condition is due to a number of causes. Hereditary weak lungs, whenever required to overcome unusual force in emptying themselves of inspired air, are liable to become over-distended and dilated. Such unusual force is sometimes required in children during attacks of coughing, especially in Whooping Cough. Occupations requiring blowing, as music and glass-blowing; or straining and lifting have a tendency to induce this condition.

SYMPTOMS.—A person may be somewhat short of breath upon going upstairs. A child may not be able to play as other children do, because of shortness of breath. There may be attacks of suddenly getting very white. The rasping breathing sounds may be readily heard. The lips are usually blue. The patient has attacks of Bronchitis, which are apt to recur. During these attacks of Bronchitis there are often spells, much resembling Asthma. The chest in this condition is usually barrel-shaped.

TREATMENT.—A uniform climate is very important. Tonics should be used; exposure avoided. Exertion should be restricted to the limits of comfort. Emphysema should be treated as ordinary Bronchitis. Little can be done for the disease itself when once established; but fortunately the patient may live many years without suffering seriously from it.

# SECTION III.

## DISEASES OF THE CIRCULATORY SYSTEM AND BLOOD.

### ANGINA PECTORIS.

Disease of the Heart, medically called *Angina Pectoris*, is a painful disease, and one which not infrequently produces an agonizing affection of the Heart. It is commonly felt as a pain in the breast, without referring it to any particular part. It is known to be an affection of the Heart, by dissection after death. Its attacks are usually very sudden. An acute pain is felt at the lower end of the breast-bone, extending a little to the left side, over the position of the Heart in the chest : a loss of breath, or a sense of suffocation, and great anxiety, follow the pain ; the countenance becomes deadly pale ; the pulse sinks ; and the surface of the body is covered with a cold sweat. Such is the sinking of the vital powers, that life itself seems about to be suspended. In the commencement of the disease, the fits of distress are greatly relieved by a short repose, or by remaining for a few moments perfectly still ; but sometimes they grow more severe, and require for their relief the most powerful anodynes. The affection is, perhaps, discovered by ascending a steep place ; by a sudden emotion of the mind, or by suddenly running upstairs ; sudden bursts of anger, or excitement, will also bring it on. Where this complaint becomes violent, the pain extends from the Heart down to the middle of the arm, and often, on the same side, even to the extremities of the fingers. Sometimes both arms are affected. Along with the pain, which is said to be agonizing beyond description, there is, as I have before told you, a sensation as of instant impending death. The paroxysm ceases as suddenly as it comes on. These spells of anxiety and distress will often last for half-an-hour at a time, accompanied with a violent palpitation of the Heart. The paroxysms appear to be produced frequently by eating a full meal at night, which often brings on an attack of this disease after the first sleep. A light vegetable diet, and abstinence from heavy suppers, and a regular mode of life, are therefore of great importance to those afflicted with this complaint ; carefulness will tend to prevent a recurrence of the affection.

Remedies.—In Disease of the Heart, *instant* stimulation is demanded. The first convenient stimulant at hand must be used, till other remedies can be procured. A glass of Spirits and Water, as hot and strong as it

can be swallowed, may be given. A quarter of a grain of Morphine should be injected under the skin, as soon as possible. It may be necessary to resort to the inhalations of Chloroform to give relief, but the use of this drug should not be too long postponed. Apply to the Breast a strong Mustard Poultice, and one between the Shoulders, and also Hot Applications to the Feet. A person who is subject to this disease, or has once suffered an attack of Angina Pectoris, should never be without perles of Amyl Nitrite. These are little glass globules, containing just a sufficient quantity of this drug to give relief, when broken upon a handkerchief and inhaled. In the treatment of this disease, it is highly important that relief should be produced as early as possible; the cultivation of a quiet, even temper of mind—the avoidance of all sudden and violent exertions of the strength—a vegetable diet—cold water for drink—early rising and moderate exercise, are the necessary conditions both of relief and of cure. Wind in the Stomach and Bowels frequently accompanies Angina Pectoris, and when this is the case, Peppermint, Camphor, Paregoric, the Essence of Cinnamon, or of Anise Seed, should be given.

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## VALVULAR DISEASE OF THE HEART.

The heart is supplied with four sets of valves, all of which prevent back flow of blood. Each valve, or various combinations of these valves, may become diseased. The commonest cause of disease of these valves is rheumatism, though any of the acute fevers may leave or produce changes in them. When a valve becomes diseased, the heart must do more work to overcome this defect; to do this extra work the muscle of which the heart is composed enlarges. If this enlarged muscle is overworked, in other words, if the patient exerts himself much, the muscle will give,—will stretch; the heart in this condition is said to be dilated.

The symptoms of Valvular Disease depend upon the particular set of valves affected. The disease may be discovered accidentally, while the patient is being examined for something else. Headache, dizziness, flashes of light, fainting, palpitation, pain in the region of the heart, shortness of breath, swelling of the feet, cough and scanty urine, is a partial list of the many symptoms of Valvular Disease of the Heart.

Treatment of Valvular Disease.—Rest is the most important measure in the treatment. Rest in bed is essential when there has been a breakdown, that is when the stage of stretching, dilatations comes; at this stage drugs are also required, and of all the drugs for this condition there is one that is absolutely reliable, Digitalis. This wonderful drug, commonly called Foxglove, should be given in the form of the tincture, fifteen minims, every three hours for two days; then rest, and if necessary repeat in a few days. It may be necessary to give small quantities for long

periods of time. In some cases of dilatation of the heart, bleeding may be required to give relief. If the patient is pale, Iron or Arsenic are to be given in some form. Strychnia should also be given in small doses.

A person suffering from Valvular Disease must always be careful to avoid over-exertion, as a breakdown may follow the slightest over-exertion. When once a breakdown occurs, the patient can scarcely hope to get back to his former condition again.

Death sometimes suddenly puts an end to the suffering, no matter what drugs are used.

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## PERICARDITIS.

PERICARDITIS is an inflammation of the sac which contains the heart. It is usually caused by Rheumatism, Scarletina, or other fevers.

The disease may exist without producing any symptoms. There may be some pain, usually there is fever.

This disease seldom kills, though it is so often associated with serious diseases that it is often seen at post-mortem examinations.

Sometimes, in this disease, fluid collects in the sac; then the condition is more serious, of course depending upon the amount of fluid. If there is much fluid, difficult breathing is produced. The voice may be lost, restlessness and sleeplessness occur.

Rest in bed is very essential in the treatment. The mind too must be given absolute rest. Cold applications should be kept on the heart. Digitalis or Aconite should be given in small doses. If much fluid collects, or if it turns to pus (matter), it must be drawn off; the operation done by skilled hands is not serious.

This disease itself rarely proves fatal, and it does not leave any serious after-effects.

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## ENDOCARDITIS.

THIS is an inflammation of the lining of the heart cavities; it may be either simple or malignant. Rheumatism, Pneumonia, and Chorea (St. Vitus's Dance) are often associated with this disease, it seldom occurring alone. It may result from a cut or wound of the skin, from Puerperal (Child-bed) Fever, or from Gonorrhœa.

The disease may exist without producing any apparent symptoms; when it occurs with other fevers it usually causes the temperature to go higher than customary with that particular fever. It often acts very much like Ague, there being chills followed by rise of temperature. It may also be readily mistaken for Typhoid Fever or Cerebro-spinal Fever. Gangrene may occur.

The simple form of the disease is usually not serious. The malignant form usually results fatally; at present we know of little that can be done to give relief.

TREATMENT.—Absolute rest in bed is essential. The bowels should be kept open. Nourishment should be light and rather dry, but supporting. Cold applications should be made over the heart. Tonics and heart stimulants may be required from time to time.

## PALPITATION OF THE HEART.

IN HEALTH the movement of the heart is not felt; when the movement is felt, the condition is termed Palpitation. Nervousness, tobacco, tea, coffee, and alcohol may cause this condition. It is in some cases accompanied by serious diseases of the heart, but far more often it results from the above mentioned causes. The treatment consists in rest, mental and physical, change of climate, and avoiding the use of the above named articles. The pulse is normally 72 to the minute; in this disease it sometimes goes up to 100 to the minute.

## ARTERIO-SCLEROSIS.

THIS is a disease of the arteries caused by excessive use of Alcohol and by Syphilis. The same disease, also, often accompanies old age. Lime salts are gradually deposited in the diseased arteries, so that they become hard and inelastic. When much lime is deposited, the arteries become more like solid pipes, than soft rubber tubes, which they naturally resemble. In the wrist such a hardened artery feels like a whip-cord.

When the disease is not far advanced, it does not often produce serious symptoms in itself, though it often leads to attacks of Angina Pectoris, Apoplexy, Bright's Disease, and many others.

To avoid this disease, avoid excessive use of Alcohol, excessive venery and syphilis, and keep young as long as possible.

The treatment, when the disease is once established, consists in the application of general hygienic measures, and taking a hundredth of a grain of Nitro-glycerine, internally, three times a day, over extended periods of time. If preferred, a drop of Amyl Nitrite may be inhaled instead of the Nitro-glycerine.

## ANEURISM.

ANEURISM is a disease of the blood-vessels, in which the walls gradually "give way" at a local point. The vessels become dilated, forming a tumor or mass, which usually pulsates. Sometimes these Aneurisms, by

their constant rubbing, wear away adjacent parts, often eroding parts of the breast-bone or spinal column. Usually they terminate, sooner or later, by rupturing, causing death by hemorrhage. The bleeding may be entirely concealed, that is, inside.

If discovered when they are still small, the progress, by proper care, may be stayed. The treatment consists in long continued inactivity or rest, even to confinement in bed. In some cases operative treatment is curative.

## VARICOSE VEINS.

THE superficial veins, especially of the leg, often become swollen, enlarged, and tortuous; they are also painful, and sometimes cause the entire foot and leg to swell. Ulcers may form. This is a general picture of what is termed Varicose Veins.

THE CAUSES are absence or poor development of the valves which are normally in the veins; occupations requiring the standing position; tight garters, and certain injuries, may also tend to produce the disease.

THE TREATMENT consists in rest, with the feet and legs elevated; wearing well-fitting elastic stockings or rubber bandages; massage, *i. e.*, stroking the limb toward the body, may give great relief. Stockings and bandages should be adjusted before getting out of bed in the morning.

If the above measures do not succeed in giving relief, resort may be had to operative treatment, which usually results in a satisfactory cure.

## NÆVUS—BIRTH-MARKS.

THESE are superficial, cutaneous, blood tumors. The cause is unknown. Whether impressions made upon the mother's mind, before the birth of the child, have any connection with the cause, is still a disputed point; there are many facts to support such a theory.

The tumors are composed of a mass of enlarged capillary blood-vessels. Sometimes they continue to grow and increase in size after birth, in which case they become a menace to life; fortunately, however, this result is rare. Usually they are troublesome only in so far as they disfigure.

Small ones may be completely eradicated by means of the Electric Needle. Large ones may sometimes be removed by more or less extensive operations. I have never seen them successfully removed by salves or by "hocus pocus."

## DISEASES OF THE LYMPHATICS.

THE Lymphatics extend over every part of the body, in more or less distinct channels, with here and there small nodes or glands, which enlarge

if they become inflamed. There are certain parts of the body where these nodes are grouped closely together in chains; the common places for these chains on the surface, are in the groins, the arm-pits, and at the back and sides of the neck. If a finger is hurt, though very slightly, some poison may get into it; this poison multiplies and is taken up by the lymphatics. If it is a very active poison, it causes an inflammation of the lymphatics, which is manifested by red streaks passing up the arm, here and there a node is involved and becomes large and tender; if the inflammation ascends to the arm-pit and is severe, the lymph nodes in this region may become as large as a pigeon's egg, and may suppurate, *i. e.*, matter may form in them. The treatment in such a case must be very active. The arm should be bathed in a solution of Bichloride of Mercury, of a strength of one part in two thousand of water. The bath should last an hour or longer at a time, and the solution should be hot. It may become necessary to open the enlarged lymph glands.

The glands enlarge in some general diseases, such as Syphilis, Tuberculosis, Cancer, and some less common diseases. Tuberculosis enlargement of these glands, especially in the neck, constitutes the disease formerly known as Scrofula.

## ELEPHANTIASIS.

This is a disease in which there is obstruction to the flow of the lymph. It produces swelling and overgrowth of the part beyond the point of obstruction. In the lower extremity, the condition produces such a change that there is a fancied resemblance to an elephant's leg, hence the name. The condition may occur in the tongue, extremities, or genital organs.

Many causes may arise to produce this strange condition, among others, a small parasite—a worm—called *filiaria sanguinis horninis*, is a strange one, and fortunately uncommon; Syphilis, Erysipelas, injuries and tumors, may be causative agents.

The treatment must be directed toward removal of the cause, if possible. Rest, elevation, and bandaging of the part, are the fundamental principles.

## DISEASES OF THE SPLEEN.

The Spleen is one of the ductless glands whose function is not thoroughly understood. We know that people can live a great length of time without the organ; for in certain accidents it has been necessary to remove the organ. Recovery from the operation has been complete, but sooner or later the patient dies.

The organ has an intimate connection with changes in the blood, and it is known that some of the white blood corpuscles are supplied by the

spleen; it is also believed that worn out red corpuscles are destroyed by the organ.

In fevers, especially Typhoid and Malaria, and in Leukæmia there is usually great enlargement of the spleen; it then forms a mass on the left side, just at the margin of the ribs.

In the treatment of the diseases with which enlargement is associated, and if there is much pain, Hot Applications or a Mustard Plaster is about the extent of what can be done. Usually the swelling goes down upon subsidence of the fever, but in Chronic Malaria it may remain large.

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# DISEASES OF THE BLOOD.

## ANÆMIA.

The Blood is an albuminous fluid, in which a definite number of very small bodies, called corpuscles, float. A diminution in the total amount of blood, or in the number of corpuscles, or in the amount of albumen, constitutes the disease called Anæmia. It is apparent that there are a number of forms of this disease.

Among the causes, loss of blood by accident is a common one. It is also caused by various diseases, as Tuberculosis, Bright's Disease, Cancer, or by poisons, such as lead, arsenic, and mercury. Some forms of the disease as Chlorosis or Green Sickness of young girls does not seem to have any cause beyond improper diet and excessive work, or lack of exercise and fresh air. In this form of Anæmia there are often menstrual disorders, but they are caused by this Anæmia, rather than the cause of the Anæmia, as was long supposed.

The blood amounts to about one-thirteenth of the body's weight, and a person may recover after the loss of half of this amount. A person weighing 130 pounds might lose, by some serious accident, five pounds of blood, and yet recover.

If much blood is suddenly lost, the treatment, after the flow is checked, consists in injecting into a vein, or under the skin, or into the rectum, a salt solution, consisting of a teaspoonful of common Salt to a pint of water, which has previously been boiled, to sterilize it, and allowed to cool to the body temperature (98.4°). The amount of this solution injected should equal the amount of blood lost.

In Chlorosis the peculiar greenish-yellow color of the skin is very suggestive. Flesh may be normal in amount or excessive; there is seldom loss of flesh. The appetite is capricious, often there is a craving for sour food. There is palpitation of the heart upon the slightest exertion, usually

accompanied by shortness of breath. Constipation is present in a majority of cases.

In some forms of Anæmia the patient loses in weight, gradually the color leaves the skin, then the lips, and other mucous membranes; finally, the skin becomes of a marble-white color. In this form of Anæmia no cause has been found, and there is no remedy. It usually terminates fatally, though lasting over various periods of time. This, fortunately, rare disease, is termed *Pernicious Anæmia.*

THE TREATMENT of Anæmia consists in keeping the bowels well opened by, if necessary, a dose of Salts each morning. In Chlorosis Iron is almost a sure cure, Bland's Pill is the best form; it contains 2 grains of Sulphate of Iron. Such a pill should be given three times a day, increasing the number so that three, three times a day, are being taken by the fourth week.

Iron, fresh air, nutritious food, and exercise are necessary to the successful treatment of all forms of Anæmia.

Usually to make a definite diagnosis, in suspected cases of Anæmia, it is necessary to make a microscopical examination of the blood. This must necessarily be done by an experienced specialist.

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## LEUKÆMIA.

LEUKÆMIA is a disease of the blood in which there is a great increase in the number of white blood corpuscles.

The patient perhaps first notices a progressive enlargement of the abdomen; he may have bleeding from the nose. Shortness of breath is usually present; sometimes there is Anæmia. The disease usually proves fatal in two or three years, though it may pass through a much more rapid course. Recovery seldom occurs. The spleen, which lies just under the ribs, on the right side of the abdominal cavity, usually becomes much enlarged. There is often tenderness over the bones of the extremities. The pulse is rapid, and there is usually more or less fever. Hemorrhages are common, especially from the nose, bowels, and stomach. Deafness or blindness or both may occur sooner or later. In the male, priapism is a strange though common symptom. A positive diagnosis can only be made by a microscopical examination.

As the disease is almost invariably fatal, the treatment is limited to making the patient as comfortable as possible. Fresh air, good diet, and prevention of mental worry, are important general indications. Fowler's Solution of Arsenic, in drop doses, three times a day, gradually increased, sometimes produce favorable results. If there is any suggestion of Malaria, Quinine should be freely used.

# SECTION IV.

## DISEASES OF THE URINARY ORGANS.

### BRIGHT'S DISEASE—NEPHRITIS.

The kidneys may be acutely or chronically inflamed. Acute Nephritis often occurs in association with or as a result of fevers, especially Scarlet Fever and Measles. It is also caused by poisons, as Bichloride of Mercury, by excessive use of Alcohol, by exposure to wet and cold, and in women by pregnancy.

Acute inflammations, which are not cared for, readily become chronic. Usually the chronic cases start as acute inflammations. Inflammations of the bladder may extend to the kidneys, causing chronic inflammation.

The attention is usually called to the condition by an increase or decrease in the amount of urine passed; puffiness or swelling of the eyelids and feet. A convulsion may be the first indication of Bright's Disease. Pain in the back may or may not be present. If some of the urine is boiled, a white, feathery mass is formed throughout the urine. It is usually necessary to examine the urine by the microscope to make a positive diagnosis.

The patient should be kept in bed. The skin and bowels should be stimulated, *i. e.*, made to throw off waste products ordinarily thrown off in the urine. The best way to stimulate the skin is by a hot bath, and wrapping the patient in hot blankets afterward, until there is a profuse perspiration; he should then be covered with blankets sufficient to keep the skin moist all the time. At this time cold draughts should be avoided. The best way to open the bowels in this condition is with Salts, half an ounce of Epsom Salts may be taken each morning, or $\frac{1}{20}$ grain of Elaterium may be taken once or twice a day. Meat should be excluded from the diet, which should be limited to milk or buttermilk as nearly as possible. Gruels, barley water, and weak beef or chicken broth, may be given if milk is intolerable. Later on, fruits, bread and butter, lettuce, and like articles of diet may be eaten. Water or the alkaline mineral waters should be used freely. Lemonade is usually very pleasant and useful. If there is much pain in the back, heat in the form of hot fomentations or a Mustard Plaster may be used. For vomiting, bits of ice swallowed usually brings relief. A hot bath should be given in case of convulsions. Iron should be given

in Bright's Disease when the patient becomes pale. Five to ten drops of the tincture, in water, may be taken three times a day; a teaspoonful of Basham's Mixture of Iron may be taken instead of the tincture. Iron should always be taken as a pill, or through a glass tube, so as not to injure the teeth.

In older people suffering with chronic Bright's Disease, light diet, meat not oftener than once a day; abstinence from alcohol; keeping the skin active by bathing, and the bowels regular; avoiding exertion and worry should be insisted upon. Much may be hoped for if the disease has not existed too long.

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## URÆMIA.

When the kidneys are diseased, as in Bright's Disease, they are sometimes unable to throw off the waste products of the body as fast as they are formed; then these waste products collect in the blood and act as a poison to the entire body, but especially upon the nervous system.

The first symptoms are usually intense headache, especially at the back of the head. Sometimes it commences with uncontrollable vomiting. The subject may suddenly become delirious, or may have an attack much resembling Epilepsy. The breath usually smells badly. There are a great many things which Uræmia might be mistaken for, such as profound Alcoholic poisoning, Opium poisoning, Apoplexy, Epilepsy, or some oncoming acute disease. The urine should be boiled as it gives a white precipitate in case of Uræmia.

The treatment consists in stimulating the skin and bowels to their greatest activity by the means described under Bright's Disease.

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## PYELITIS.

This is an inflammation of the upper part of the tube which conducts the urine from the kidney to the bladder. A stone in this region may be the cause. It may be Tuberculosis, or it may result from the extension of an inflammation of the bladder.

There is usually pain in the back, especially upon pressure. There are usually attacks of chills, fever, and sweating. The urine becomes turbid, and a heavy deposit forms upon standing.

In this disease fluids should be taken freely, particularly the alkaline mineral waters. Tonics and a nourishing diet with plenty of milk and buttermilk, completes the ordinary treatment. Urotropin, in 5 grain doses, three times a day, in some cases may produce excellent results. It may in severe cases be necessary to perform an operation.

## INFLAMMATION OF THE BLADDER.

This disease will be known by a burning pain in the region of the bladder (bottom of the abdomen); frequent and painful discharges of urine; an almost constant desire to make water; hard pulse, and symptoms of fever. Sometimes there is great difficulty in voiding the urine, or a total stoppage; often a frequent desire to go to stool, with sickness at the stomach and vomiting. Sometimes there is a discharge of mucus and blood along with the urine.

Causes.—The use of acrid diuretics, as Cantharides, stricture in the urethra, irritation from a stone being lodged in the bladder, Gonorrhœa, use of an unclean catheter, mechanical injury, and the usual causes of inflammation.

Treatment.—The treatment in this case must be very similar to that for Inflammation of the Kidneys. The warm Hip Bath—the patient sitting in warm water which extends above the hips—should be employed twice a day. Urotropin, in 5 grain doses, or Boric Acid in $\frac{5}{10}$ grain doses, should be taken three times a day, unless the fresh urine smells of Ammonia, in which case 5 grains of Benzoic Acid should be given three times daily.

A purgative should be given every day. The patient must abstain from everything of an acrid or stimulating nature, both of food and medicine. Large quantities of milk, buttermilk, and alkaline mineral waters, should be taken daily.

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## BLEEDING FROM THE URINARY ORGANS.

Sometimes, though it is not a very common occurrence, blood will be passed off with the Urine. If in but small quantities, it will be known by clots of blood being deposited at the bottom of the chamber, and by its staining linen a red color, by which means it may be distinguished from the high colored Urine, common in some diseases. Voiding of bloody Urine denotes danger, particularly if it is mixed with purulent matter, as it then shows that there is ulceration somewhere in the Urinary passages.

Causes.—It is sometimes a symptom of other diseases, or may be induced by external injuries, blows, bruises, or falls; by straining, and lifting a heavyweight, jumping, or hard riding on horseback. It may also arise from Stone in the Bladder, the Kidney, or lodged in the duct, which leads from the Kidney to the Bladder. It may also arise from severe Inflammation of the Bladder. It is often caused by strong, irritating, diuretic medicines. It may be a sign of Cancer of the Bladder or Kidneys, or of Tuberculosis. A foolish attempt to rupture a "chordee" usually results in bleeding.

SYMPTOMS.—If the bleeding proceeds from the Bladder, caused by a stone being lodged in it, or by inflammation of that organ, it may be known by a sense of heat and pain at the bottom of the abdomen or bowels, and perhaps much difficulty in making water. If it comes from the Kidney or Urinary Duct, caused by a stone, it will be attended with a sharp, acute pain, and feeling of weight in the small of the back, and perhaps to one side.

TREATMENT.—The treatment in this complaint should consist mainly in giving emollient diuretics and astringents.

If calculi or stone in the Kidney, or Ducts, is suspected, or in any case, a quarter of a grain of Morphine should be given to an adult. Cold applications should be made to the lower abdominal region. If the bleeding is not controlled by the above means, a hot ten per cent antipysin solution should be injected into the bladder. In rare cases it is very difficult to stop bleeding from the urinary organs.

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## RETENTION OF URINE.

FROM various causes, as inflammation of the neck of the Bladder, of the Prostrate Gland, from the effects of Gravel, Stricture of the Urethra, and the like, the Urine is liable to be retained in the Bladder, or perhaps in some other of the Urinary organs, either partially or wholly, and thereby causing great distress.

TREATMENT.—The following will generally be found sufficient in all ordinary cases: Make a pint of strong Spearmint Tea; add to it ½ gill of good Holland Gin, and 1 ounce of Spirits of Niter; let the patient drink the whole of this, at three or four times within an hour. Repeat the same within the next two hours, if the first is not sufficient. Or take Essence Spearmint, Essence Juniper, and Spirits of Niter, of each, 1 ounce; give a tablespoonful every half hour until relief is obtained. If there is much pain and suffering, add 20 drops of Laudanum to each dose, for three or four times.

At the same time, let the patient take a bath as hot as can be borne, for half an hour, urinating, if possible, while in the bath. If the bath does not succeed, hot fomentations should still be continued over the bladder.

This course will generally succeed in a few hours at most. But if it fails, put the patient in a Hot Bath, or as warm as can be borne, for ten, fifteen, or thirty minutes. This, with the use of proper diuretics, as Spirits Niter, can hardly ever fail. Opium, or Laudanum, should always be given if there is much pain.

If owing to severe stricture, or stone lodged in the neck of the Bladder, all these and similar measures fail—which they will not do once in a hundred cases—a Catheter must be introduced; in which case it will be best to send for a physician, or some one who understands using the instrument.

Should there be any inflammation or soreness in the parts, give freely, for a few days, some of the alkaline mineral waters, and pursue a course similar to that recommended for Inflammation of the Bladder.

## INCONTINENCE OF URINE.

By Incontinence of Urine, is meant an inability to retain it, or an involuntary discharge of it. The difficulty mostly occurs in children; but sometimes adults are troubled with it. It usually occurs at night, during sleep. There is also sometimes a constant disposition to void the Urine, every few minutes, owing to slight inflammation or irritation of the Bladder or Urethra.

Treatment.—Where the difficulty is not dependent on the cause just stated, it is usually owing to a lax and debilitated condition of the parts, and must be treated with tonics and astringents, such as act more or less on the Urinary organs.

Five drops of Tincture of Belladonna Leaves, at bed-time, usually, will overcome the difficulty; it may however be necessary to give more, and the amount of the drug may be gradually increased. Five drops of the Tincture of Iron should be given daily or oftener.

Proper attention should be paid to the skin. The difficulty is often owing to checked perspiration, or an unhealthy condition of the perspiratory function. The Cold Bath, or washing the patient in cold water, should be employed morning and evening, and the patient, if a child, should be made to void the Urine just before going to bed. The difficulty is often owing wholly to a neglect of this habit, and, consequently, to the carelessness of parents and those who have charge of the young.

In all ordinary cases of Incontinence of Urine, whether in young or old, the tincture of Belladonna will generally be found sufficient. To an adult, it should be given in ten to fifteen drops twice a day, and to children less in proportion to age.

## GRAVEL—RENAL CALCULUS.

This disease is caused by a collection of sand, or the formation of stone, or calculous substances, in some of the urinary organs, as the Kidneys, Ureters, or Bladder.

The agents which form the Gravel or Stone, are, no doubt, originally contained in what we eat and drink. When the system is in a healthy state, and all the functions are duly performed, these calculous substances pass off by the proper secretions; but when, owing to debility of the urinary organs, especially the kidneys, there is an excess of what is called uric acid in the system, a chemical union takes place between it and the calculous particles, thus forming stone, or larger particles, until sometimes these

formations become too large to pass off through the urinary ducts, and the consequence is, the difficulty or disease known as Gravel. The calculous body may lodge in the kidneys, or in the ureters; or it may pass down into the bladder, and if not destroyed or removed, will give rise to inflammation in the part, and other distressing symptoms.

Symptoms.—One of the leading symptoms in this disease, is a frequent desire to void the urine. This is especially the case when the Gravel or Stone is in the bladder. There is great irritation about the neck of the bladder, which sometimes extends along the urethra.

If the Stone is lodged in the kidney, there will be a fixed pain in the small of the back, or region of the kidney; sometimes acute and severe. The severest pain, however, is generally experienced when the Stone is passing down from the kidney through the ureters to the bladder, especially if it become lodged in its passage—so severe sometimes as to occasion fainting and convulsions. There is pain in the loins, a numbness in the thigh on the side affected, often nausea and vomiting, and suppression or retention of urine. The urine will be of a brown-red color, caused by a deposition of sand of that color, which will settle at the bottom of the vessel—by which you may readily distinguish the disease from mere Inflammation of the Kidneys, or Bladder. When the Gravel or Stone is lodged in the bladder, there will be pain in that organ, sometimes very distressing, accompanied with more or less inflammation, and an itching along the urethra. When the person is voiding urine, the stream will sometimes be suddenly stopped for a spell, caused by the Stone closing the passage at the neck of the bladder.

Treatment.—An attack of the Gravel, particularly if the urine is retained, or voided with difficulty, is to be treated the same as directed for Retention of Urine. If the pain is severe, as is generally the case, give, first of all, an opiate; to a grown person a quarter of a grain of Morphine; and then make use of the measures recommended for Retention of the Urine; suitable Diuretics, Warm Fomentations, and the Warm Bath.

As soon as the urgent symptoms have been relieved, a Hydragogue Cathartic should be given; Podophyllin, with Cream of Tartar, or half an ounce of Epsom Salts. The patient should then take such remedies as are calculated to prevent or counteract the tendency to the formation of Gravel. For this purpose certain mineral waters, containing Sulphate of Sodium and Magnesia are highly recommended; such waters are the Hunyadi Janos or Friedrichshall, a moderate dose of one of these should be taken each morning on rising. The diet should be attended to; sugar must be avoided as much as possible; alcohol should not be used; seasoned and fatty foods must be avoided, as must canned, potted, and smoked meats. A high, warm, dry climate and out of door life is to be preferred.

If there is Inflammation of the Bladder or Kidneys, adapt the treatment to the case, as recommended under those complaints.

# SECTION V.

## CONSTITUTIONAL DISEASES.

### RHEUMATISM.

THERE are two forms of this disease, differing from each other, and easily known; one of which is called *Acute*, and attended with fever, and the other *Chronic*, which means a lingering disease and without fever. The Acute or Inflammatory Rheumatism is known by sharp pains in the joints, which become red and swollen, especially the knees, ankles, and hips; there is also pain in the adjacent muscles and in the back, extending usually over the whole system; loss of strength, shiverings, heat, thirst, and general restlessness, and but little sleep; tongue white; the skin dry and hot, and generally covered with partial sweats. The bowels are generally costive or bound, and the pulse hard and full. There is never less than two joints affected in Rheumatism.

Chronic Rheumatism is generally called by the people Rheumatiz. This disease is not accompanied by fever; the joints are severely pained, swollen, and very tender, and usually stiff, sometimes hot, then again cold. After this disease has been of long standing, the joints become enlarged, and distortion takes place.

There are few diseases so distressing and tedious as Acute Rheumatism. It may disappear quickly, possibly in a week, and then again it may linger for a long time, in spite of the best treatment; much depending on the constitution of the person, as some are predisposed to this complaint from their ancestors. In many instances, it is brought on by exposure, cold and damp weather, or checking suddenly profuse perspiration, or unusual exertion.

This disease is most generally met with between the twentieth and fortieth year. It is more common among males than females.

TREATMENT.—In the treatment of Acute Rheumatism, the first effort should be to excite the free action of the skin, or, in other words, sweating by a warm Vapor Bath, if it can be procured; if not, substitute for it a well-warmed bed, with hot bran in bags, or bottles of hot water, or any warm applications that will produce perspiration, or sweating, with warm diluent drinks. Fifteen grains of Salicylate of Sodium should be given to an adult as soon as possible, followed by 10 grain doses during each of the

next two hours. This is one of the few specific drugs we have, and it almost invariably cures. It should be taken for some time after all symptoms have disappeared. The object is to produce gradually a moisture on the skin, and thereby reduce the fever. In this disease I have found great benefit from the simple use of Lemon-juice, 1 tablespoonful every four hours, lessening the dose gradually. Warm Lemonade is likewise beneficial. The bowels and the kidneys particularly, should be attended to, some good medicine being taken to secure several evacuations daily. A dose of Salts may be given in a tumbler of warm water, and repeated every day for several days, so as to keep the bowels freely open.

I have found, from a long experience, great advantages to be derived in the local or outward treatment of the joints. When they are much swollen and painful, much ease may be given by wrapping them up in a quantity of soft carded cotton or wool, over which wrap, if you can get it, a piece of oiled silk, so as to keep it air-tight. By thus covering the joints, you keep them in a perfect Vapor Bath, and after keeping this covering on for twelve or twenty-four hours, you will find, on removing it, that it is saturated with moisture that is strongly acid. If this treatment is continued, it will give you great relief, as it supports and keeps the limb steady, and at the same time promotes sweating. It is also serviceable in Gout, which is a twin sister of Rheumatism.

Chronic Rheumatism, properly so called, is such as I have before described, being an inflammation of a lower grade, and generally without fever, requiring some variation in the treatment. The back, hip-joints, knees, shoulders, and ankles, are the seats of Chronic Rheumatism—often a great degree of numbness in the parts affected. The extremities and even the trunk of the body, will often be much colder than in a state of health. In this disease I have found the greatest benefit from local or outward remedies, and have cured or removed the severe pains of many years' standing, by the following various remedies.

Care, however, must be taken to protect the parts with cotton, and indeed the whole body by a covering of flannel. After the hot application is removed, so as to prevent any current of cold air, by spreading the cotton about a quarter of an inch thick, and a piece of flannel sufficiently large to cover the part affected, quilt the cotton to the flannel, so as to cause it to remain spread. When applied, it will produce relief in a very short time.

Liniment.—Take of Cayenne, or Red Pepper, $\frac{1}{4}$ pound; Alcohol or strong spirits, 1 pint; soak the Pepper in the spirits for ten days, and strain it.

The best external application which we have ever used is the compound Chloroform Liniment as an ordinary liniment, and it is useful in Rheumatism; another good local application is a drachm of Tincture of Opium to an ounce of dilute Lead Water.

The use of Wine of Colchicum, or Meadow Saffron, is considered a very important remedy in this disease. The Wine of Colchicum can be obtained at any apothecary store, or you can make it, by infusing 1 ounce of the seeds in a pint of Teneriffe Wine. Let it stand two weeks, occasionally shaking, and then strain through paper. The dose is one teaspoonful. Or the following is a very good preparation: Magnesia, 1 teaspoonful; Wine of Colchicum, 1 teaspoonful; Water, 1 wine-glassful. This dose can be repeated three or four times a day.

When you find Opium necessary to give relief from pain in this disease, or to procure sleep, the best form to use it in is the Dover's Powder. This powder quiets and relieves pain. (See Dover's Powders, for dose.)

Where the disease proves very obstinate, the Hot Sulphur Springs of Arkansas, by bathing in their waters, have been found successful in removing the complaint. In some of the most difficult cases, I have given great relief by steaming the joints, and bathing them with Rum and Vinegar, as hot as could be borne. In some cases, where the patient was cold, feeble, and relaxed, Quinine, when used with prudence, has effected a cure when all other means failed.

Cold and wet are to be particularly guarded against. Flannel or woolen worn next to the skin must always be regarded as one of the chief preventatives of this disease, to be proportioned in thickness to the season of the year, and to the feelings and temperature. Some, if the flannel is uncomfortable next to the skin, may wear it over the under-dress, which should be of cotton.

Persons of full habit, liable to Rheumatism, should avoid Malt Liquors generally, take animal food sparingly, and avoid violent exertions, which heat the body. Persons of spare, weak, or feeble habit, may live more freely or better, and are required to keep up the condition of the body to as good a state as possible. Where it becomes necessary to use purgative medicines, you will find pills of Aloin, Belladonna, and Strychnine preferable, as they are innocent, yet useful in this complaint. Remember when the Kidneys are affected, or, in plain language, when you cannot pass your water freely, the Sal Niter, or in other works, Salpeter, in 8 grain doses, in ½ tumbler of Water, every three hours, possesses great power in freeing the Kidneys.

We must not omit to remind one of the dangers of Heart Disease as a result of Rheumatism. For this reason, an acute attack of Rheumatism should be attended to at once.

Any notice of Rheumatism at the present day must be imperfect without some allusion to *Electric* and *Galvanic* agencies, Galvanic Rings, Electric Chains, etc. That these appliances are at times of apparent service, in cases of Chronic Rheumatism, is undoubted, and we are not justified in rejecting their aid, because we cannot fully explain the why and wherefore

of their action. The effect of the Acupuncture Needles, in curing Muscular and Nervous Rheumatism, such as Sciatica, is sometimes almost magical; but just think what the improvements of the present age are, when, by the simple introduction of a needle into the substance of the body, it acts so as almost instantaneously to remove a most painful affection! We must, therefore, conclude by saying, that the using Electric or Galvanic appliances for the cure of Chronic Rheumatism, may be more or less useful, in a variety of cases, as they are now used extensively with many apparently beneficial effects. Perhaps much of the good which they do is purely mental; therefore, we do not unreservedly recommend Electric Belts, etc. (For a description of them, see Galvanism.)

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## GOUT—ARTHRITIS.

Gout is a peculiar disease, somewhat resembling Rheumatism, affecting the joints, most generally those of the foot or toes. It is sometimes distinguished by different names, according to its locality. Thus, when located in the feet, it is termed *Podagra;* when in the hands, *Chiragra;* and when it affects the knees, it is called *Gongra.* It is very painful at times, the pain differing from that of any other disease, being more excruciating and intolerable. It generally commences without any inflammation or swelling, simply pain in the joint, and a feeling as though the joint were dislocated. There may next be an enlargement of the joint, swelling without inflammation, that is without heat or redness; or it may become highly inflamed, red, hot, and swollen. The affected part becomes extremely sensitive and painful; the joint cannot be moved without the extremest pain; touching the bedstead, the pressure of the lightest bedclothes, and sometimes even noise in the room, or the walking of another person on the floor, causes pain and suffering. The disease usually attacks the joints of the feet, and most commonly those of the big toe.

There is often considerable fever attending the disease, with deficient perspiration, loss of appetite, headache, nervous irritability, and sometimes diarrhœa.

Gout is supposed to be owing to an excess of what is called uric acid in the blood, caused by high living, the free use of acid and fermented liquors, and an idle or sedentary habit of living. Where the disease is in the system, exposure to cold, excesses in eating and drinking, suppressed habitual discharges, as the Menses, etc., severe exercise, violent emotions or excitement of the mind, and the like, may serve as exciting causes in bringing on an attack.

Attacks of Gout may occur at any time; frequently during the early spring months, and often periodically. The symptoms are more or less

aggravated on every second or third day or night. In the acute form, an attack generally lasts two or three weeks, then terminates with free perspiration of an acid or sour smell, and copious urine, depositing a chalky and sometimes reddish sediment. The chronic form is irregular in its times of appearance, and may last for months and even years.

You may distinguish Gout from Rheumatism by the fact that it attacks the smaller joints, and nearly always those of the toes and fingers; while Rheumatism attacks the larger ones; that it begins to develop itself from within, outward, and does not shift about from place to place like Rheumatism; that it is generally preceded by attacks of Dyspepsia, which is not the case with Rheumatism; and by the peculiarity of the pain, which is of a burning, scalding, boring, and sawing nature, very different from that of Rheumatism. Gout seldom, if ever, attacks young persons, or those under middle age, while Rheumatism is mostly confined to such. Any person once having an attack of both complaints, will be at no loss to distinguish between them.

Treatment.—For temporary relief in an attack of Gout, there is probably nothing better, if so good, as bathing or holding the part affected in cold water for several minutes at a time, and repeating it frequently during the day. Warm Water, especially warm Lye Water, in which a quantity of Saleratus has been dissolved, is also recommended. In some cases, perhaps, it is preferable to cold applications; but in a majority of cases, bathing or immersing the part frequently in cold Water will be found to afford the most relief. In many cases, together with proper regard to diet, it will be found sufficient. A quantity of Salt may be dissolved in Water.

Sometimes elevating the joint above the remainder of the body and wrapping in cotton or wool, as was done to rheumatic joints, gives relief.

The main thing, in order to effect a cure, is a change of diet, with plenty of exercise, even to hard labor, if practicable—the harder the better. Spirits, Wine, and fermented Liquors are to be avoided, except where necessarily connected with the medicine to be taken. Also Meats, and stimulating or strong Food.

An active cathartic should be taken, such as 2 grains of Calomel or a dose of Podophyllin, 3 grains, with Cream of Tartar; or any other good Physic. After that has operated, procure 2 ounces each, of Wine of Colchicum and Liquor Potassa—which you can obtain at a drug-store—mix, and take 1 teaspoonful three or four times a day. Or the Tincture of Black Cohosh and Wine or Tincture of Colchicum, equal parts, may be used in the same way, adding 1 drachm of Iodide of Potassa to 4 ounces of the liquid.

The bowels are to be kept loose and regular by the occasional use of cathartics, and a rigid adherence to a low diet observed throughout.

## EXCESSIVE FLOW OF URINE—DIABETES.

This disease is characterized by frequent discharges of large quantities of Urine. It is usually attended with costiveness, voracious or increased appetite, and yet with great debility, emaciation, and more or less hectic fever. The Urine is generally sweet, containing a large quantity of saccharine matter, or sugar. The quantity of Urine is often enormous, being greater, sometimes, than both the food and drink taken into the stomach. Patients have been known, in bad cases, to pass three or four gallons of Urine in twenty-four hours!

Causes.—The causes of this disease are not well understood. There seems in some persons to be a hereditary predisposition to it. It is probably owing mainly to a perverted or diseased action of the kidneys. Disease of the pancreas and of certain parts of the brain may produce Diabetes. There appears to be a preponderance of saccharine matter in the system, or a disposition to its formation, and a deficiency of counteracting agents. Where a predisposition to the disease exists, it may be induced by various causes—as exposure to cold and damp air, a poor diet, venereal excesses, continued use of mercury, the excessive use of sugar, and such vegetables as readily form saccharine matter; anxiety, grief, and various diseases, as Rheumatism and Gout.

Symptoms.—The most striking symptom, especially in the earlier stages of the disease, is an increase in the quantity of Urine, accompanied, as a matter of course, with a frequent desire to pass it; the patient being often compelled to rise for that purpose two or three times, or oftener, during the night. The disease is apt to come on very insidiously and gradually, and may progress for months without exciting much notice, until other symptoms begin to succeed.

The urine is very irritating, in women it produces an intense itching about the vulva. If the urine is allowed to drop on dark cloth it usually leaves white spots. Chemical examination shows it to contain sugar.

The appetite is usually much greater than in health, sometimes voracious; while digestion is generally imperfect. There is apt to be uneasiness in the stomach after meals, with flatulence, sour belchings, and irregularity in the bowels.

Great thirst is a never-failing attendant. The patient wants to drink nearly all the time, and this fact often attracts his attention, before he is aware of the true nature of his condition.

Perspiration is very imperfect, or totally suppressed; the skin is dry and harsh; the gums often red, swollen, and sometimes ulcerated. The tongue is white and foul in the center, with red edges; the mouth dry and parched, and the taste vitiated.

As the disease progresses, the patient complains of pain and weakness in the loins and region of the kidneys, followed with general debility, swelling of the legs and feet, emaciation, hectic fever, cold feet, sense of weight at the pit of the stomach, difficulty in breathing, easily fatigued, with a tendency to sleep, general languor, and depression of spirits. The disease, if not checked, may prove fatal in five or six weeks; but it usually runs longer, sometimes for several years, before it wears out the constitution.

TREATMENT.—Restorative medicines constitute the principal agents to be used in this disease.

Attend well to the skin; sponge the body all over every night with the warm Alkaline or Saleratus Bath, and rub well.

The treatment consists in avoiding *all* sugar and all forms of food containing starch. Clear meat soups, coffee, tea, lemonade, sweetened with saccharine, not sugar, meats, butter, eggs, gluten and bran bread, lettuce, spinach, radishes, asparagus, cucumbers, celery, and the acid fruits—currants, apples, cherries, pears, etc., may be taken. Most other articles of diet should be avoided.

Medicinal treatment is not very satisfactory. Opium is the only drug which is of use. Codeine, made from Opium, given in ½ grain doses three times a day, is the best form of Opium to use.

Diabetics often have much trouble with boils, sometimes having many crops of them. Gangrene is of common occurrence. Cataract sometimes occurs. These unfortunate people often sink into a deep coma or unconscious state, from which they seldom waken.

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## DROPSY.

SOME authors and doctors suppose that the science of medicine consists in the multiplication of technical terms, and enumerate many species of Dropsy, according to the part of the body in which the effusion occurs. I have alway endeavored to be plain and explicit, so that my readers can at once comprehend my meaning. When this disease takes place in the cellular membrane, which is immediately beneath the skin, it is termed Anasarca; when in the cavity of the belly, Ascites; when in the chest, Hydrothorax; but all such collections fall under the general denomination of Dropsy, and when produced by debility, require the same method of treatment. The symptoms of Anasarca are: a uniform pale and often shining distension of the skin, most generally of the legs, at first soft, and readily receiving the pressure of the finger. The swelling, after a horizontal or reclining position for some hours, is much diminished, and the face becomes swelled. It gradually extends itself upward, till it occupies the thigh and trunk of the body, and not infrequently the head, attended

with great scarcity of urine, which is always high-colored. When this disease occupies the belly, the enlargement begins at the bottom, gradually increasing upward, attended with a sense of weight; and the patient feels a sense of fluctuation or moving of the water on a sudden motion of the body. As the enlargment increases, the breathing becomes more difficult, and the cellular substance, or veins of the legs become distended. When the effusion is in the cavity of the chest, there is always, more or less, a sense of anxiety about the heart; a great difficulty of breathing, which is increased by lying down; a dry cough; palpitation of the heart; paleness of the face; and when far advanced, the legs swell, and a fluctuation or movement is felt by the patient on any sudden shake of the body.

Dropsy of the Chest and of the Heart show themselves by an intermission of the pulse; shortness of breath; when any active exercise is taken, particularly in ascending a pair of stairs or a hill, there is an increased action of the heart; and paleness of the face and skin. On going to sleep at night, a feeling of suffocation is felt, so as often to compel the person to rise up immediately in bed. The noise or motion of water can often be heard distinctly in the chest, by placing the ear upon the heart, when the person turns from one side to the other. Numbness of one or both arms is frequently felt in Dropsy of the Chest. A Dropsy of the Chest sometimes exists alone; and not infrequently it will constitute a part of a general disease. The most common attack of this disease is the Dropsy of the Abdomen, or Belly, medically called Ascites, which is easily distinguished by a sense of weight or swelling of the belly, with a gradual accumulation or increase of water; the weight being felt on the side on which the patient generally lies.

Dropsy is generally the effect of other diseases, such as diseases of the Liver, Kidneys, and Heart. It often arises from pressure upon the blood-vessels, as in Pregnacy, Aneurisms, and Tumors. It is especially produced by intemperance in the use of spiritous liquors; for drunkenness more frequently produces Dropsy than any other cause. Ossification of the valves of the heart will produce a Dropsy of that organ, and eventually of the whole chest. The Bowel Complaint of children will often produce Dropsy of the Brain. Scarlet Fever has likewise produced Dropsy in various parts of the body. From experience it is certain that most Dropsies arise from some derangement of the circulation of the blood, producing a stagnation or slowing of the blood-current.

Remedies.—The great and important object in the cure of this disease, is the removal of the collected water, and the restoration of the tone of the system, bearing in mind that Temperance and Exercise are of the greatest importance in the prevention and cure of this disease. Indeed nothing promotes a free and lively circulation of the blood so much as Exercise; it assists the vital powers both in moving the blood, and in hastening the secretions and excretions. The perspiration, especially, is always increased

by it; and this increase of the perspiration diminishes the accumulation of water in the Dropsical part. This is the reason why Friction, or rubbing the Dropsical parts briskly, or even the whole body with a brush, quickens the circulation of the blood, and causes an absorption of the water. As regards the diet, the food should be light and nourishing, and the drink nothing but Milk and Lime Water, avoiding all drinks as much as possible.

Large and frequent doses of purgative medicines are important, and very useful in this complaint. They should be frequently used, with such medicines as act upon the kidneys; for this purpose, use Salts, Cream of Tartar, and other purgatives which drain the bowels of water. The Calcined Magnesia operates upon the kidneys by its alkaline qualities, and upon the bowels as a purgative, and should always be used where other remedies fail. I consider it as one of the very best remedies in this complaint. The Iodide of Potash, in doses of five or six grains, once in three or four hours, is a late and valuable discovery in Dropsy. Sweet Spirits of Niter, Fir Top, Gin, Juniper, Parsley, Saltpeter, Potash, Soda, Squill, and Turpentine, are all used as diuretics in this disease. As there is, however, always some degree of uncertainty in the action of diuretic medicines, some answering well in one case, and not at all in others, owing, in most instances, to the peculiar state of the constitution, or the nature of the disease; it is, therefore, most advisable to try these various remedies until found successful It sometimes happens that diuretics which would not act before, act after the administration of an active purgative; but if the patient is of a weak habit of body, the bowels should be kept open simply by the use of Salts, Cream of Tartar, etc., as before mentioned. Jalap, as a purgative, see table for dose, is considered a valuable remedy in this complaint; but from a long experience in my profession, I feel convinced that the vegetable kingdom furnishes many roots and herbs better adapted to the cure of this disease. The Vapor Bath is useful; as many persons may not understand the method of preparing the Vapor Bath, so many different forms having been invented for this application of steam, I will describe a simple one. The most convenient form is to place a kettle of water on the fire, with a tube to convey the steam underneath a blanket with which the person is covered all but the head, so as to let in the hot steam and produce a perspiration or sweat, regulating the temperature of the bath, so as not to produce too great a determination of blood to the head. From fifteen to twenty or twenty-five minutes, will be generally sufficient; and must be regulated somewhat by the effect or sensation experienced by the patient. The object to be attained is a free perspiration. Another simple Vapor Bath may be made by placing a vessel of boiling water underneath the blanket or cloth in which the person is closely covered, all but the head, and keeping up the steam by means of hot stones or any hot metal; another, by wrapping him in a blanket wrung out of hot water, and covered with several dry blankets to prevent the evaporation.

The following pill has seldom failed in affording relief in Ascites and other forms of Dropsy: Take Compound Powder of Colocynth, 3 grains; Croton Tiglium, 4 drops; mix, and form into three grain pills. Give one pill every six hours, until it produces copious or large evacuations. Repeat when the water accumulates. Take also a teaspoonful, several times a day, of a strong decoction of Digitalis. The above pill, with the other means I have before mentioned, has had an extraordinary effect in some of the very worst cases. It may be necessary to administer some strong tonic, to sustain the strength of the patient, while such large quantities of water or serum are evacuated.

Of all the purgatives used in Dropsy, Calomel in large doses ($\frac{5}{10}$ grains) is the most valuable; it not only acts upon the bowels but also upon the kidneys. Elaterium may be given in $\frac{1}{10}$ grain doses every two hours until there are two or three watery movements of the bowels.

Having thus given you such of the late and valuable discoveries as my experience has proved most successful in many apparently desperate cases, I shall conclude my remarks on this important subject, by the following directions as to the regimen: Nourishing diet is required in every species of Dropsy. The amount of liquids should be reduced to a minimum. Tonics should be administered. The skin and bowels must be constantly kept active by the means already described.

Finally, the treatment must be directed towards the cause. Heart, Kidneys, and Liver must be examined; tumors must be removed; in pregnacy it may become necessary to induce an abortion. The purgative may be repeated according to the strength of the system.

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## RICKETS.

This is a peculiar disease, seated principally in the bones, and is owing to a deficiency of earthy deposit in the formation and growth of the bones. It usually occurs in children of a rachitic constitution. Owing to the soft condition of the bones, they are often not able to support the body, and more or less deformity will occur. It may be only a slight curvature in the bones of the legs or in the backbone; but, in bad cases, the deformity is sometimes so great as to change the whole figure and appearance of the person; the head becomes enlarged; the ribs too straight or too much curved; the breast-bone rises or projects outward, and the spine or backbone will have two or three curves, shortening the body to near one-half its proper length, and otherwise distorting its general appearance. The abdomen is sometimes greatly enlarged. The skin and flesh become flabby, the body wastes away, and the teeth become loose and drop out.

TREATMENT.—This disease is to be treated in the main as a case of Malnutrition. If it is neglected long, it will be difficult or impossible to prevent deformity; but if proper treatment is commenced early, this may be prevented.

The patient should be bathed or washed twice a day with Salt and Water, and rubbed well, commencing with the water slightly warm, gradually using colder each day, till it may be used quite cold.

The diet should be nutritious, and as the disease occurs in young children milk is the best food. It should be diluted according to the age of the child.

Fresh air is essential; in cold weather the child should be well wrapped, but by all means it should be out of doors much each day.

Medicines are of little value, Phosphorous is said to benefit some cases, and $\frac{1}{120}$ of a grain may be given three times a day, dissolved in Olive Oil. Cod-liver Oil is usually indicated. Five drops of the syrup of the Iodide of Iron may be put in each dose of Cod-liver Oil.

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## SCURVY.

THIS disease consists in a vitiated state of the blood, tending to ulceration of the various tissues, associated with bleeding from the mucous membranes.

CAUSES.—Scurvy, on land, prevails mostly in northern latitudes, in low, marshy districts, or near where there is a great deal of stagnant water, and is caused probably by cold, moist air. It is also occasioned by long continued and constant use of salted provisions, salt and smoked meats, to the exclusion of vegetables—hence the reason of its prevailing so much among sailors. Neglect of cleanliness, confined air, unwholesome food, want of exercise, and anything that tends to weaken the system may cause it.

SYMPTOMS.—Generally the first symptoms are loss of weight, weakness and pallor, softening, ulceration and bleeding of the gums, attended with an offensive breath, and perhaps frequent bleeding at the nose. There will also be a feeling of weariness, shortness of breath, and fatigue, after a little exertion. As the disease advances, there will probably be swelling of the limbs, or a wasting away, and yellowish or livid spots will appear on the skin, or scaly eruptions. The face is generally pale, or of a leaden color. Finally, other symptoms come on, as decay and looseness of the teeth, hemorrhages of blood from different parts of the body, obstinate ulcers, scaly eruptions all over the body, pains in the breast and bones, hectic fever, and the patient is carried off by Dysentery, Heart Failure, or sudden Syncope.

TREATMENT.—The only certain way of curing this disease is to reverse, as far as possible, that state or combination of things which produces it.

Change the habits, locality, and diet of the patient. If it is thought to proceed from a sedentary life, or depressing passions, the patient should take daily exercise in the open air, or engage in some out-door employment, and be placed amid associations calculated to divert the mind and inspire cheerfulness. If the disease has been brought on by the long use of Stale and Salted Provisions, the proper remedy will be a diet consisting mainly of fresh Vegetables, fresh Bread, Milk, Cider, and Vegetable Acids. If fresh Vegetables cannot be had, then pickled Vegetables are the next best. Sour-crout is an admirable remedy. As a drink, Buttermilk, and the Whey of Sour Milk are good. Cider Vinegar is also of service, and should be mixed with most of the food. The juice of two or three Lemons should be taken daily.

Besides the diet, particular symptoms and conditions will require particular treatment. For sore and ulcerated gums, use the Compound Tincture of Aloes and Myrrh, as a wash; or take Gum Myrrh, Aloes, and Extract Liquorice, of each, ½ ounce; pulverize, and add 4 ounces or a teacupful of Hot Water; stir; when cold, put the whole in a bottle, and add ½ pint of good Brandy; let this stand four or five days, shaking occasionally, and then strain through flannel. Use this as a wash to the gums and ulcers of the mouth and throat, three or four times a day.

If there is Diarrhœa or Dysentery, use small doses of Bismuth and other remedies suitable to that condition. If Constipation, Laxative Medicines; if Pains in the Bowels, Fomentations, Emollient Poultices, and Anodynes, or Opiates; if oppression in the Chest and difficulty of Breathing, Mustard Plasters and Relaxing Expectorants; if Pains or Contractions in the Limbs, Swelling of the Joints, etc., use stimulating and emollient Liniments, with friction. If the Skin becomes affected with spots, scabs, or scales, rub the whole surface once a day with Sweet Oil; if ulcers form, apply Dusting Powders, as Boric Acid.

# SECTION VI.

## INFECTIOUS DISEASES.

### FEVERS.

#### OF FEVERS IN GENERAL.

UNDER this head are embraced all Fevers by which the human frame is affected. Fevers are very numerous, and arise from various causes, affecting persons of different constitutions more or less violently. This will show the necessity and importance of looking well to the constitution of the person before prescribing remedies. If you employ the same active treatment for a delicate and weakly person, that you would for a healthy, robust one, your patient will sink under the remedies. A long experience in practice has convinced me that the stomach must first be attended to and relieved in the treatment of Fever, and the first impression made upon the stomach by medicine, acts instantly by sympathy throughout the whole system. This is the organ which receives the medical remedies, by which the disease is to be subdued.

The great secret of medicine is to discover the cause of disease; the next is to apply the remedies properly, and the third and last is to watch closely their effects. The practice of medicine is very simple, and founded upon good sense. A fool, with all his theory and learning, will never make a successful practitioner.

As Fever shows itself in various forms, it is important that inquiries be made into the true causes which assisted in producing the disease.

When the Inflammation or Fever originates from external or outward causes, such as wounds, blows or burns, the Fever that follows, which is called the local affection, is in proportion to the degree of inflammation in the part affected. Such Fevers are called, medically, *Local Inflammations.* And this is the case in certain disorders of the lungs, and other diseases of the body, which arise, not from external injuries, but from some fault or disease in the part, which gradually brings on Inflammation and Fever. If the local inflammation be removed, or, in other words, health restored to

the part affected, the Fever is removed also; if this cannot be subdued, but keeps gradually increasing and destroying the organization of the part, the patient dies, sometimes by the violence of the Fever, and sometimes because an organ essential to life is destroyed.

Cold very frequently produces inflammatory disorders, and when of long standing and neglected is apt to settle on the lungs.

During the winter, and early in the spring, Pleurisies, Quinsies, Rheumatisms, and Inflammatory Fevers prevail. Toward the end of summer, and particularly in autumn, Fevers of a different nature prevail, with Dysenteries, and putrid, ulcerous Sore Throats generally make their appearance.

During the summer months, in sultry weather, when the body is relaxed, and when heat and moisture combine to hasten the decomposition of animal and vegetable substances, and fill the atmosphere with miasmata, or, in other words, foul air, together with the effluvia of stagnant water, all tending to produce Fever, then Bilious, Intermittent and Remittent Fevers are most prevalent.

But a still more active source of Fevers is produced from the effluvia arising from the living human body, when people in great numbers are crowded together, when the air is deprived of its vital ingredients by repeated and constant respiration, and made poisonous by foul exhalations. Hence this infectious matter will be formed in jails, in the holds of ships, in dirty dwellings, or by the effluvia coming from bodies in a diseased state; and it likewise communicates its infection to those who approach the place in which it is generated. Infections of this kind will remain long ensconced in beds, blankets, and articles of clothing, which have been in contact with the patient's body, retaining poison, and capable of infecting others (unless properly cleansed) should they be brought in contact with them. In this manner have many persons been infected with Fever, by handling or washing the articles, being more or less predisposed to disease. There can be no doubt that some persons will be infected with disease, while others equally exposed may escape.

All diseases of an infectious nature are more or less modified by change of climate, cleanliness, and various other causes acting upon the constitution. Persons who take violent exercise in sultry or hot weather, or who accidentally fall asleep on the damp ground, or are exposed to the beams of the mid-day sun, or to the heavy dews of night, or have the perspiration suddenly checked, are more or less liable to Fevers of an inflammatory and dangerous nature.

That most, or all of the acute infectious (catching) fevers are ultimately caused by very minute living plants or animals, there is at present no doubt; in fact, the ones which cause Typhoid and Malarial Fevers, Influenza, Diphtheria, Erysipelas, Cholera, Bubonic Plague, Tetanus, Leprosy, Tuberculosis, and Glanders have already been discovered. Some of these

"germs" gain admission to the body by inhaling them, others are taken with our food or drink, while still others gain admission through cuts or abrasions of the skin. No doubt many times these germs gain admission to our system, but being in a condition of health we are able to overcome them; only when the system is below par, when we don't feel quite "up to the mark," then they take hold and produce their characteristic disease.

They are very much like seeds—in fact, they are seeds of disease. They require certain favorable conditions of soil and surroundings before they will grow.

Symptoms of Fever.—Lassitude or weakness of muscular power, accompanied with an expression indicative of some inward distress, and an aversion and inability to every exertion, either of mind or body, usually denote the approach of Fevers. Irregular chills and heats, with great restlessness and a general sensation of soreness, succeed; while flushing of the face, increased heat of the skin, especially of the hands and feet, quick pulse, headache, or a disturbed condition of the mental faculties, demonstrate that the Fever is already formed, and that medical assistance should be rendered to the patient. The temperature of the normal body is 98.2°, in fevers it may rise to 110°, though such a high temperature usually proves fatal.

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## MALARIAL FEVER.

This is a kind of Fever that comes on periodically, which means at particular times, having a clear intermission or length of time between the fits. This Fever is distinguished by physicians under the following names: *Quotidian*, if the fit return every day; *Tertian*, if the fit comes every third day; and *Quartan*, if it comes every fourth day.

The little animal which causes Malaria is so small that it is just visible with the most powerful microscope. It develops in the blood.

These little germs grow in marshy, swampy districts and get into the "stingers" of mosquitoes. If a mosquito, laden with such a "germ," bites a person, the "germ" is almost certain to be deposited in the blood of the person, where it develops and reproduces its kind, sometimes in one day, sometimes in three, and sometimes in four. The birth of the new ones causes the chills and fever. If the blood is examined with a powerful microscope at the time of a chill, it will be found to contain large numbers of the "*Plasmodium Malariæ*," as the germ is called by scientific men.

General Symptoms of Fever.—Malaria commences with weakness, frequent stretching and yawning, followed by a feeling of coldness in the

back and extremities, which gradually increases until the limbs and body become greatly agitated with frequent and violent shivering. This continues for some time, when a violent pain of the head and back comes on, and a sensation resembling a stricture, or tightness across the stomach, is frequently felt, and the feeling of coldness is so great that the patient can obtain no warmth. After a short time the feeling of coldness begins to wear off, by degrees, followed by warmth, which gradually increases, until redness and heat, much greater than natural, spread over the whole body, and the patient at length becomes so extremely hot that he is now as anxious for refreshing cold air as he was before desirous to obtain warmth. After these symptoms have lasted for some time, they gradually pass away, the thirst goes off, the skin is relaxed, and a moisture breaks out on the head, which soon becomes general, and profuse sweating soon breaks out over the whole body; then slowly going off, it entirely disappears. These are all the symptoms, or progress of a regular form of Intermittent, or, in other words, Malarial Fever; then the patient is left, apparently, free from disease, until the next attack, with the exception of weakness and debility. The fits generally make their invasion with a wonderful degree of exactness, at the same hour as the former, and lasting generally about the same length of time.

TREATMENT.— For the cure of this disease, whether it is the Quotidian, Tertian, or Quartan, the same plan must be followed—which is, as far as possible, to prevent the disease from becoming habitual; for the longer it continues, the more it weakens the constitution; and if improperly treated or neglected, it is generally followed with serious consequences, disposing the liver, spleen, etc., to obstructions, and frequently prepares the system for Dropsies and other Chronic Diseases.

The first thing to be done for the treatment of the cold fit, is to produce artificial warmth by bathing the feet and legs in hot water, covering the body with blankets at the same time. When in bed and well covered, apply to the feet Hot Water-bottles, and let a dry heat be likewise applied to the pit of the stomach, abdomen, and along the spine or backbone, and to the hands. Warm drinks should be given freely, such as Hot Lemonade. In short, during the cold stage, endeavor to produce the hot.

In the second place, during the hot stage, you are to lay aside the remedies used in the first stage, giving cooling drinks, and removing, gradually, the clothing, etc., which greatly oppress the patient at this time, and if the Fever is very high a cool Sponge Bath may be given.

In the third, or sweating stage, the patient should be kept cool, wiped dry after it is over, the clothing changed, and sleep permitted. When there is much debility or weakness, stimulants should be given, such as a little Warm Brandy, or Whiskey Toddy, or Wine and Water.

Quinine is a specific in Malaria, *i. e.*, if properly given, it will positively

cure this disease. The amount of Quinine for an adult should be 21 grains before the expected Chill. It should be given in capsules or in the liquid form. Commencing four hours before the expected Chill, 7 grains should be given, and each succeeding hour the dose should be repeated until the twenty-one grains are taken. This will not prevent the first chill following, though it may diminish its severity. After the Chill is over, from 10 to 20 grains of Quinine should be given hourly, in 2 grain doses for the next two or three days.

For Chronic Malaria, *i. e.*, attacks at intervals of two or three months, of Chills followed by Fever, associated with enlargement of the Spleen, Arsenic should be given as Quinine is ineffective. The Arsenic may be given to an adult in the form of Fowler's solution—a drop or two three times a day after eating, or the following pill: Saccharated Carbonate of Iron, 1 drachm, Arsenious Acid, ½ grain, mixed with any Pill mass and divided into 25 Pills, one taken after each meal. This latter prescription will be found valuable in Anæmia and Chlorosis.

Inasmuch as marshy districts and mosquitoes play an important part in the cause of Malaria, as has been said, avoiding these two "evils" will aid in preventing Malaria.

I supplement my remarks on this disease by giving you my favorite remedy, which, in my practice, has always been successful: Sulphate of Quinine, 20 grains; Sulphuric Acid, 20 drops; dissolve the Quinine in the Sulphuric Acid, to which add 1 ounce of Paregoric; shake well together, and give a teaspoonful every hour, until you have given six doses. The proper period for the exhibition of this medicine is during the remission.

When children are afflicted with this disease, these remedies should be proportioned to their ages. (See Table of Doses, for dose.)

As Agues are liable to recur in some delicate constitutions, it would be well to wear flannel next to the skin as a preventive. Removing for a short time to a more healthy air, has often effected a cure. In like manner a change of medicines is as necessary as a change of air; therefore, neither bark, nor any other tonic medicine, should be used longer than a fortnight at a time, but should be *changed* for another remedy whose virtues are nearly the same.

When a week or two has passed, in case the disease should prove obstinate, larger doses should be given.

In the cold fit, give Warm Drinks. In the hot fit, Cooling Drinks, Lemonade, and Toast and Water. Cold Spring Water should be taken in small quantities at a time.

When the sweating stage begins, the drinks to be the same I have mentioned, giving, at the same time, a little Wine occasionally, and any light nourishment may be allowed that the patient desires. During the intermission, or well days, give the patient such diet as will strengthen him,

and moderate exercise in the open air, unless the weather or a damp situation forbids. Great care should be observed, in taking exercise, that we do not carry it to fatigue, which prostrates the system and prevents a healthy reaction, or, in other words, induces debility or weakness.

CONGESTIVE CHILLS.—This disease sometimes assumes an alarming form, known as the Congestive or Sinking Chill. The cold stage or chill is much longer than previously; the whole capillary system, and small blood-vessels near the surface, seem to be "congested;" the skin is cold, clammy, and pale or death-like, and the patient apparently "sinks," as though death were about to ensue. The exact cause of this form of the disease is not well understood, except that it is probably the same as that of ordinary Chills and Fever, the system only being more thoroughly charged with the poisonous malaria. Congestive Chills seem to prevail in certain districts, and during certain seasons, more than in others.

TREATMENT.—In Sinking or Congestive Chill, the treatment must be more powerful and energetic than in the common form of the disease; prompt and powerfully stimulating means should be at once adopted. Give immediately two or three large doses of Quinine, with plenty of Brandy; say 15 grains of Quinine, divided into three powders, and give one powder every hour, with half a tumbler of Brandy; at the same time rub the body of the patient well with Spirits so as to recall warmth and the blood to the surface. The Warm Bath is also good.

The remedy of greatest importance in these cases is the Quinine, and sometimes it will have to be given in large doses, say ten to fifteen grains every fifteen to thirty minutes, until three or four doses are taken, and reaction begins to be established. To promote its absorption, internal and external stimulants are employed to remove congestion. It may be necessary to inject it hypodermatically.

After the chill has been overcome, and reaction takes place, treat the same as an ordinary case, while the Fever lasts. When that is over, and during intermission, give Quinine, in pills or liquid, as for an ordinary case of Fever and Ague.

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## CHRONIC MALARIA, OR BILIOUS FEVER.

IN THIS Fever the symptoms vary according to the situation and constitution of the patient, the climate and predisposing causes, or season of the year. It arises, perhaps, from too much bile, or from exposure, derangement of the liver, or from other causes similar to those which produce Intermittent Fever, or Malarial

Fever. In Bilious Fever there are remissions, which mean a mitigation of symptoms, or retirement of the Fever for a time, but it continues on slightly until a fresh attack ensues.

In warm climates, however, it comes on more actively, and assumes very quickly, if not arrested, a dangerous form. Like other Fevers, it commences with a sense of coldness and shivering, violent pains in the head and back, spirits low, sickness at the stomach, giddiness or swimming of the head, great weakness of the whole body, and difficulty of breathing: then comes the cold stage, followed by considerable increase of heat, while the pulse, which was small and quick in the cold stage, becomes full, and increases in its quickness.

Pain of the head and back more violent, and the sickness at the stomach increases, with frequent desire to vomit, which at last results in throwing up bile. All these symptoms continue, the skin is hot and dry, with great thirst, and gradually the skin becomes moist. Shortly after this the symptoms pass off, and sometimes apparently cease entirely.

The patient begins to have hopes of getting well, but in a short time he is disappointed by another attack coming on more violent than the first. If this Fever be not opposed by proper medicines, in the early part of the disease, it will end in delirium, when great restlessness takes place; the discharges by stool will be very offensive; after which a jerking of the nerves, a profuse clammy sweat, convulsions or contractions of the muscles, and in a short time death ensues. The causes which produce this disease are the same, in a great measure, as those which produce Intermittent, although acting in a more powerful manner.

In the months of July, August, and September, when heat and moisture combine to hasten the decomposition of animal and vegetable substances, by impregnating the air with noxious exhalations, this disease prevails to a greater or less extent, according to the season and predisposing causes, all of which have a powerful influence in either mitigating or increasing this disease. A mild form of Bilious Fever frequently attacks delicate persons, and is usually preceded by irregular action of the digestive organs, such as Dyspepsia, Flatulence or Wind, Diarrhea, etc. This is called Gastric Fever, produced by those ordinary evils—cold, damp, and fatigue.

The patient complains of weakness, drowsiness, slight chills, and flushes of heat, but no perspiration; skin hot and dry; thirst; slight sickness at the stomach; total loss of appetite; increase of Fever in the evening, sometimes occurring at noon, and not unfrequently in the middle of the night.

Treatment.—In the treatment of this disease, great care should be

taken to direct your attention to the condition of your patient, and the severity or mildness of the attack; for frequently in diseases of the same origin, and in persons very nearly similar, in respect to age and temperament, one would frequently be accompanied with an inflammatory or some morbid peculiarity of constitution, while another will exhibit more of the low, irritable forms, so that the treatment must be varied in proportion to the nature and violence of the attack; for among Fevers are to be found all the intermediate degrees and varieties from the common Ague to those of the most violent and infectious kinds. If the patient be of a very strong, full, plethoric constitution, with a hard and quick pulse, a deep-seated pain in the eyes, a burning heat at the stomach, and flushed and reddish countenance, indicative of strong inflammatory disposition, early Cupping or Leeching on the temples, and cold applications to the head, will be of much benefit. Under these circumstances, where the headache is violent, the skin dry and hot, and the pulse full and bounding, the symptoms will be moderated by these remedies; but in the absence of these symptoms, use other agents. I have no doubt in many instances, particularly in hot climates, great harm has been done by bleeding to excess. Blood-letting, unseasonably and injudiciously employed, either endangers life, or has a very remarkable effect in protracting recovery, by the insurmountable weakness it often produces. I am now speaking of hot climates where experience has proved this fact; so much so, that the use of the lancet now is seldom, if ever, required.

Bleeding by cupping or leeching is of very great service, in such cases. This is called Topical Bleeding. It is very useful and, in most cases, may be beneficially applied where much pain is located, according to the urgency of the symptoms, and the strength of the patient, until their object is accomplished. The best time for the application of these remedies, is during the abatement of the Fever, or when the skin is warm and dry. Remember that no Depletion is to take place, under any circumstances, when we see evident signs of prostration or sinking in the patient.

The use of purgatives, in the treatment of Bilious or Remittent Fever is of the utmost importance; for the evacuation of the intestinal canal is always the first step to be taken, at the commencement of this disease, and repeated occasionally during its continuance, with care as to the effect produced, increasing or diminishing accordingly. Excessive purgation should be avoided. It is quite enough, as a general rule, that, at the commencement of this disease, two, three, or four consistent stools should be procured during each twenty-four hours, and in the latter part, one or two is sufficient. Should there

be, however, any intestinal irritation, great caution is then necessary, and milder laxatives should always be preferred to cathartic or active medicines. In this Fever different combinations of cathartic medicines are used by different practitioners, but nearly all of them make use of some mercurial preparation, either Calomel, Blue Pill, or Cook's Pill (which is composed of equal parts of Calomel, Rhubarb, and Aloes), because they are believed to exert a peculiar action upon the liver, and for their value in restoring and correcting arrested or depraved secretions. After unloading the stomach and intestines, by two or three brisk purges, on the first intermission of Fever, use the Quinine, by giving 2 or 3 grains every hour during the remission. Some eminent physicians give larger doses of Quinine, from 15 to 20 grains at a dose, repeating if necessary.

I find, however, a very valuable remedy in the following, viz.: 14 grains of Quinine to 1 ounce of Water (which is equal to two tablespoonfuls) to which add 14 drops of dilute Sulphuric Acid; mix well together. Dose: a teaspoonful to a grown person every hour during the remission of the Fever.

As a general rule in the treatment of the common forms of Bilious Fever, physicians desire to diminish the intensity of the local congestions and irritations by Depletion and Purgatives, to lessen the general febrile excitement, and to render the remissions more distinct before resorting to the use of Quinine. Other physicians attach less importance to the preparation of the system, and give Quinine on the first intermission. Strange as it may seem, yet the fact is, that good observers are quite as rare as good reasoners in science; there are many, "who having eyes see not, and having ears hear not." Observation is the means of discovering truth. My long practice has convinced me that during Fever there is a necessity of unloading the stomach and intestines, by two or three brisk purges before the Quinine is used. However, if the patient suddenly becomes giddy, feeble, and languid, tonics must be resorted to, such as Quinine, Wine, Porter, and other stimulants, to be given freely, on the remission, otherwise it will degenerate into a Nervous Fever.

Here comes the point for sound judgment not to mistake the debility which arises from oppression, requiring evacuants for an exhausted state of the system, which would do serious injury, and increase the Fever.

It is always necessary in this, as in all Bilious diseases, to pay strict attention to the bowels. They must not be suffered to become costive, but must be kept open by the use of mild purgatives or laxative medicines daily, or at most every other day, such as Butternut Extract Pills, or Senna and Manna, Salts, Cream of Tartar, and the like.

In place of the laxative medicines, it is often well for patients to use clysters or injections made of Warm Soap-suds. The bowels may thus be relieved without the use of purgatives, and the good effects produced by fomentations may be reached.

Diaphoretic or Sweating Medicines are also an important class of remedies in this as in all Fever diseases. They tend to determine the blood and fluids to the surface, to equalize the circulation, and thus relieve congested parts and the internal organs. Emetics relieve Congestion of the Liver, determine to the skin, producing gentle moisture or sweat, as well as carrying off the bile.

The Warm Bath is a very valuable remedy; it promotes insensible perspiration, by relaxing the skin, and taking off the stricture of the vessels; if possible, it should always be used. If a bath tub cannot be procured, the feet and legs should be immersed in Warm Water, at least once a day. The warmth of the bath should be made always agreeable to the patient. In my practice, I use the Cold Water, by sponging the body with it, adding a little Salt. This frequently used, particularly when the Fever is at its height, and the head much affected, has been attended with the best effects, giving Cold Water to drink, even Ice Water, for this is Nature's remedy, which will reduce the Fever. In warm climates, I have given the cold affusion by sponging, or throwing Cold Water over, the patient, or putting him into a wet sheet for a few moments, after which rub dry with a coarse towel, and replace in the bed, producing, in a very few minutes, very great relief. Also employ cold applications to the head.

When the inflammatory disposition has ceased, Tonic medicines will considerably hasten the cure; but if used during the Fever, they will render every symptom more violent and prolong the disease.

Should the stomach be very irritable, let the patient frequently moisten his mouth and throat with cold water; he must not drink too much liquid of any kind, or he will continue to vomit; the object should be to keep the stomach as quiet as possible.

In the course of this disease, Headache frequently occurs; when this is the case, apply cloths, wrung out of Cold Water, or Vinegar and Water, to the head, repeated as often as they get warm, until the pain abates, and if it becomes necessary, apply a Blister between the shoulders.

Where the patient is very wakeful and no sleep can be procured, you will find the Warm Bath apt to produce it, but if either of these fail, try a glass or two of Porter, or the Camphorated Julep or mixture, or Hop Tea, or a pillow of Hops. A dose of Laudanum is proper at bed-time, provided there exists no considerable inflammatory symptoms.

A very pleasant plan of treatment in this disease—especially for the sick person, and fully as successful as the proper means usually employed—is as follows: Take a common-sized tumbler two-thirds full of cold water (about 4 ounces), and add to it 20 drops of the Tincture of Aconite Root; give a teaspoonful every half hour when the fever is highest, and every hour during the remission. Associated with this, use the Alkaline Bath frequently, and when the fever commences to decline, the hot Foot Bath. With the abatement of the fever, give Dover's Powder in doses of 5 grains

every two hours until the skin becomes moist. During the remission, give Quinine to the extent of 10 or 15 grains. In persistent cases, give, in addition, a teaspoonful every two hours of the following: Acetate of Potash, ½ ounce; Water, 4 ounces. Two or three drops of Fowler's Solution should be taken after each meal.

Congestive Form of the Disease.—What is known as Congestive Fever is only an aggravated form of Bilious or Remittent Fever, a form which the disease is more apt to take during some seasons than others. A Congestive state is also sometimes induced by neglect of the disease at the commencement, or by exposure or active exercise, or by improper and inefficient treatment. In the Congestive state there will be great prostration of strength, attended with cold, clammy sweats; coldness of the extremities; irregular pulse—sometimes slow, feeble and impeded, at other times full and bounding; confusion of the mind, Vertigo, Lethargy, and often delirium; hurried and difficult breathing; frequent sighing; haggard and distressed countenance; dull, glassy eyes; tongue covered with a white or brown fur; or if the liver is much congested, the tongue will be red, with a raw appearance, and perhaps cracked and bleeding; the urine scanty and high colored.

The Treatment is the same as the foregoing, only it should be prompt and more vigorous. The patient should be sponged all over with the warm Alkaline Bath, or warm Saleratus or Lye Water, and rubbed well; sponging also afterward with warm Vinegar and Whiskey is good, with severe friction or rubbing. Mustard Plasters, with a little Cayenne mixed in, should be applied to the feet, legs, hands, and wrists, and a large one over the region of the liver.

Internally Diaphoretics or Sweating Medicines should be given, and as soon as the natural warmth of the body has been restored, give a dose of Calomel, or active Cathartic Pills, enough to act promptly and thoroughly; or a dose of Podophyllin and Leptandrin, from 1 to 3 grains each, according to age. After the physic has operated, give Tonics, Diaphoretics, and Stimulants—continue bathing and friction.

The deficiency or irregularity of heat on the surface is among the first symptoms that indicate Congestive disease; if the skin be restored everywhere to its natural warmth, a cure may soon be expected. Recovery rapidly progresses if natural warmth be speedily restored and a universal perspiration excited. On the decline of this Fever, patients are apt to crave particular foods and drinks, which should be allowed them, as Nature, in these instances, seems to point out those remedies which prove of the greatest advantage.

In those cases in which this disease ends in the Typhoid state or Fever, which is known by the following symptoms—a disturbed state of the brain and nervous system, showing itself by frequent sighings, wandering delirium, watchfulness, or irregular and interrupted sleep; deranged state of

the secretions and excretions, attended with a brown or black state of the tongue, and an offensive smell of the whole body; in this state of the case, you must give nourishing diet and stimulants, such as Wine, Brandy, Porter, and all other things which will sustain the system. Attention must also be paid to the state of the bowels, and their offensive contents, not by active purges, which, in this exhausted state of the system, would kill the patient, but by injections, or by the occasional use of Calcined Magnesia, in small doses alone, or a few grains of Rhubarb mixed with it, so as to act very gently on the bowels.

Be attentive also to remove everything offensive; have the sheets and linen of the patient frequently changed, and keep the skin clean by wiping the whole body, twice a day, with dilute Alcohol. By perseverance in the above treatment, I have seen persons recover under the most unpromising circumstances.

I have now given you, in the clearest and plainest manner, according to my experience, the best means of treating this most prevalent and dangerous of all Western diseases. I shall now close these remarks with a few words of advice. To obviate the attack of Summer and Autumnal Fevers, we should guard as much as possible against their influence, avoiding a hot sun, and the night air, or checking the perspiration, or intemperance in eating or drinking. Cleanliness, both of person and dwellings, is to be attended to; living temperately and avoiding strictly every exposure, suiting the dress to the changes of the weather. Hard drinking is another cause of disease, which should be carefully guarded against in warm climates, particularly by seamen and boatmen, who, of all others, are the most inattentive to health. The same admonition applies to their sleeping on deck during the night; also exposure when over-heated, or in a state of intoxication, which, by checking suddenly the copious perspiration, seldom fails to bring on Fever. A proper regulation of diet, by preserving the happy medium between long fasting on the one hand, and immoderate eating on the other, is essential for the prevention of this disease, and the preservation of health.

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## NERVOUS OR TYPHUS FEVER.

This disease is known by various names, according to the symptoms which predominate, as Nervous Fever, Slow Fever, Jail, Hospital and Ship Fever, Spotted or Petechial Fever, Putrid Fever, and Malignant Fever. Typhus Fever is also contagious, to some extent, or under certain circumstances. These terms are sometimes also applied to Typhoid Fever, when it assumes a character to justify their use.

It receives its first name from attacking the brain, and the effect it produces on the nervous system. The second, from the slow and gradual

manner in which it sometimes comes on. The third, fourth, and fifth, because it is apt to break out in jails, hospitals, and ships, where a number of men are crowded together, and where proper cleanliness and ventilation are not observed. The sixth, from certain spots or pimples, slightly elevated above the surrounding skin, of the size of a pin head, of a bright red or rose color; sometimes there are but very few, principally upon the belly and chest, but sometimes on the face and wrists, and the most usual period for their appearance is during the second week of the Fever; in a few instances, as early as the close of the first week. The seventh derives its name from the putrid state or tendency, supposed to take place in the fluids. The last, from the dangerous nature and malignity of the Fever; they are, however, the same disease, varying according to the violence of the symptoms, and the different constitutions of the patients.

Symptoms.—In this disease, more than in any other Fever, the symptoms vary. It sometimes creeps on in such a slow, secret manner, that the disease will have made considerable progress before the patient is aware of the necessity of using remedies, but on other occasions, it comes on with a greater degree of rapidity. The symptoms are pretty much alike, common to all Fevers; first heat, then cold, or sometimes chilliness followed by heat, want of appetite, sickness at the stomach, and occasional vomiting, followed by some confusion of the head, feeling of weakness, lowness of the spirits, trembling of the hands, frequently sighing without knowing the cause, pulses irregular, sometimes a little faster than usual, and at other times about natural. In some patients, a dull and heavy pain in the back of the head is complained of, with a sense of coldness; in others, a pain in one eye.

These symptoms gradually increasing, the pulse becomes smaller, and at the same time quicker, while the arteries of the temples and neck beat with additional force. The patient is generally more restless toward night, the breathing is somewhat difficult, and very little refreshment is obtained from his short and disturbed slumbers. This gradual increase of symptoms, with the peculiar, pale, sunken countenance attending Fever, will give the alarm, even when other Nervous Diseases, with which the earlier symptoms have been confounded, are present. In the progress of the disease, the system is equally affected; for sometimes headache, restlessness, and uneasiness prevail in a high degree, while, at the same time, the tongue is clean and moist; and at other times, while there is no headache, or restlessness, the tongue will be dry and foul, and profuse sweats will break out. This Fever, moreover, is not only thus irregular in affecting various parts of the body, but it is also irregular in its recurrence after the remission; and these, instead of taking place in the evening, will arise often in the morning. Again, sometimes the Fever is very violent for the first three or four days; it then diminishes for a time, and then, perhaps, increases again,

After, or about the tenth day, the weakness increases considerably; the whole nervous system becomes affected with tremors and twitchings; the urine is commonly pale; the fingers are in constant motion; the tongue becomes dry, of a dark color, and trembles when attempted to be put out, and sometimes the gums and lips are covered with a dark, viscid substance. To these succeed stupor, cold, clammy sweats, with a fetid smell, hiccough, and twitching of the tendons, together with an involuntary discharge of the excrements. In every malignant case, this Fever ends fatally on or before the seventh day; but more frequently toward the end of the second week. When the patient survives the twentieth day, he usually recovers. When the Fever terminates favorably before, or at the end of the second week, the crisis is generally obvious; but when that happens at a later period, particularly if after the third week, the favorable turn is less evident, and sometimes several days pass, during which the disease goes off so gradually, that the most experienced are in doubt whether it abates or not. At length, however, it becomes evident by a warm moisture on the skin, by the dark colored gluey substance which adheres to the gums and lips, growing less tenacious, and being more easily removed; by the stools regaining a natural color; by the urine being made in greater quantity, and depositing a sediment; by a return of appetite, and by the pulse becoming slower than it was at the commencement of the disease. Deafness ensuing, tumors appearing behind the ears, a red rash, and an inflamed scab below the nose, or about the lips, are also considered favorable.

The symptoms which point out the approach of death, are the dilated pupil, or glassy, staring eye; involuntary, cadaverous smelling, evacuations; hiccoughs; cold, clammy, and partial sweats, with a small, weak, creeping, tremulous pulse; anxiety, restlessness, and grassy color of the face, or a sad expression, low muttering, or high delirium; starting of the tendons, quick speech, voice altered, constant watchfulness, with incoherence, stern sullenness, or unmanageable fury of mind, picking of the bedclothes, blindness, inability to put out the tongue, difficult deglutition, or swallowing, sliding down in the bed, lying on the back, drawing up the knees, insensibility, with a disposition to uncover the breast, or frequent attempts to get out of bed.

The causes which occasion this disease, are impure air, and living on damaged or improper provisions. Although these causes produce the disease, in frequent instances (where it is not epidemic or catching) persons are attacked even in the country with this malady. Filth, a moist atmosphere, much fatigue, cold, scanty diet, depressing passions, excessive study, too frequent use of Mercury, excessive intercourse with women, profuse hemorrhage, or whatever weakens the nervous system, may produce this Fever.

This fever also arises from Bilious Fever, when of long standing, changing into Nervous Fever. I consider this disease essentially one of debility.

TREATMENT.—In regard to the benefit of Emetics in this disease, there is some difference of opinion with medical men. They have, however, been mostly used under two circumstances; first, at the very commencement of the Fever, and secondly, when a relapse or aggravation of the symptoms has been threatened, by some intemperance in eating, etc., at or near the time when the patient was about to recover. They were used in Philadelphia in 1836, during the prevalence of this Fever, diminishing the violence of the disease very successfully; if used within the first twenty-four hours from the time of the attack, they generally arrested the disease.

On the first appearance of the symptoms, give 20 to 30 grains of Ipecacuanha, or 4 or 5 grains of Tartar Emetic, either of which may be dissolved in a pint or more of weak Camomile Tea, letting the patient drink a gill every fifteen or twenty minutes until he vomits freely, which ought to be assisted by drinking warm water.

In the early period of the simple Typhus, giving an Emetic, followed the next day by some active Purgative Medicine, has frequently cut short the Fever at once, lessening its duration and its dangers.

Through the whole course of the disease, the bowels must be kept gently open, so that the patient should, in no case, be more than two days without a stool; for Costiveness is apt to induce an increase of heat, and an affection of the head, as Delirium, etc.,—a great deal of feculent matter is produced in Fever, although little food is taken. In administering Purgatives, however, you must be very careful not to employ them in such doses as will operate severely—for if you do, you may produce great debility, and thereby lose your patient. The object is to procure one or two discharges from the bowels daily; for this purpose, two pills, containing each 1 grain of Podophyllin, 1 of Scammony, and 1 of Aloes, may be given; to be followed, after three or four hours, by some mild Purgative Medicine, such as Castor Oil, Salts, Senna and Manna, Cream of Tartar, or Tamarinds; but you are not to purge so as to produce debility, for the danger of this Fever is in proportion to the weakness.

The great point is to support your patient's strength and spirits by a liberal use of Tonic Medicines, by which I mean Sulphate of Quinine, Wines, etc., which should be early employed in this disease. At the same time a nourishing diet should be used, suited to the taste of the patient, and strict attention paid to cleanliness and a free circulation of pure air. While you are supporting the vital energies of your patient, you must take care to prevent feculent matter from being confined in his bowels, by occasionally administering Clysters, if the gentle laxatives have not accomplished this result. The Saline Mixture, given in a state of effervescence every two hours, rapidly abates thirst, and removes the incrusted irritability of the system.

Dr. Gerhard, in his account of the Philadelphia epidemic, in 1836, says: "It is difficult to conceive the extreme prostration in which our patients

were left after a severe attack of Fever. The skin was usually cool, the pulse very weak and fluttering, and accompanied by muttering delirium, and great feebleness or weakness. Under these circumstances, Wine or Brandy, and a Milk diet produced effects which acted like magic."

The Doctor said it did not appear necessary that Wine should be given in very large quantities, but varied it according as the necessity of the case required. From half a pint to a pint may be used during the twenty-four hours, depending upon the strength, the constitution, and the habits of the patient, and the benefit derived, as one will easily perceive from their use. An ounce of Brandy may be given every two or three hours, if the patient is very weak.

Among the means for restoring, temporarily at least, the exhausted and flagging energies of the system, may be included the external application of dry heat, and Mustard Plasters, to the feet. Dr. Gerhard says of these latter: "They were of great and undoubted advantage in the stage of prostration which occurs at the decline of Fever, and certainly contributed to save the lives of several of our patients." He also found them useful in diminishing the stupor and prostration during the disease, as well as reanimating the strength of patients who were brought to the hospital exhausted or weakened from neglect, or from a fatiguing ride from a distant part of the city. But if the Fever was high and the skin very hot, the Mustard Plasters to the feet were not as beneficial as when the skin was cool, and the patient seemed sinking from weakness.

A most powerful and valuable remedy will be found in Cold Water; the earlier it is used in this disease the better, or as soon after as you have evacuated the contents of the stomach, bowels, etc. In the earlier stage of the disease, Cold Water may be poured in considerable quantities from a height, or dashed on from a pail or basin, over the patient, but in the advanced stage of the disease, sponging the body will be more safe; both modes are grateful and refreshing to the patient, and generally bring about an abatement of the Fever, followed by more or less moisture of the skin, and then by a refreshing sleep. Bathing with Cold Water may be used at any time during the day, when there is no sense of chilliness present, or when the heat is already above what is natural, and when there is no general or profuse perspiration or sweating.

During the cold stage of the paroxysm of Fever, while there is any considerable sense of chilliness present, or where the body is under profuse sensible perspiration, this remedy ought never to be employed, as by so doing we might extinguish life. In the advanced stage of Fever, when the heat is reduced, and the debility great, some Stimulant, such as Wine warmed, with an addition of Spice, or Warm Brandy, should be given immediately. In some cases, where the delicacy of the system will prevent the Cold Water from being employed, tepid or milk-warm Water may be used, suffering the surface of the body to be exposed occasionally to the

air, by this means you diminish the pulse, the breathing becomes easier, and sleep is immediately apt to follow. In the progress of this disease, special morbid symptoms will require especial treatment. Thus, affections of the head, with stupor and delirium, will be relieved by frequently washing the temples with Cold Water, which should be frequently renewed; and if the delirium be accompanied with wildness of the eyes, an ice-cap or cold compress must be applied to the head.

Where there prevails any unusual coldness in the lower extremities, recourse must be immediately had to the Warm Bath, or to some warm, stimulating applications externally, in order to restore the circulation. The efficacy of the Bath will be greatly increased in such cases, by having it strongly impregnated with Salt, and the patient should remain in it till his skin becomes warm. On being removed to his bed, he should be well rubbed all over with Hot Flannels, and bottles of Hot Water, or Heated Bricks, with Vinegar poured upon them and enveloped in Flannel, applied to his feet, legs, and under the arm-pits. When a bath-tub cannot be procured, use, as an embrocation, a strong solution of Table Salt, in Heated Spirits, which admirably recalls the languishing circulation to the surface.

Camphor is one of the most useful and powerful remedies in this disease, when sleep has been interrupted by disturbances of the nervous system, or jerking of the muscles, which is, in many instances, immediately checked by giving an Injection, or Clyster, in which 20 grains of Camphor are dissolved, and give internally, by the mouth, 5 grains dissolved in a wine-glassful of Water, well mixed. This dose should be given every two hours until it brings on composure of spirits and sleep. In some cases this remedy will exert a perfect control over the jerking of the muscles, and like most of the remedies of its class acts as a useful balance-wheel in preserving the harmony of the system, until the disease has passed through its natural course, which is about fourteen days, so that we should assist Nature in all her salutary efforts to overcome this disease.

When there is great restlessness, and the patient exhausted by agitation, and tormented by incessant nervous jerking, you will find a small dose of Morphia (see table for dose), which is a preparation of Opium, will calm the agitation and induce sleep. It is not a remedy which should be used in large doses, as patients with Typhus are certainly more readily affected by its narcotic properties, than they are in any other disease.

The diet, when the Fever begins to decline, should be somewhat nutritious and supporting. The contagious character of the disease should be borne in mind. The first precaution is to separate the sick from the healthy, and thus cut off, as much as possible, the intercourse between them. Purify both beds and clothes from every particle of filth; the chambers must be often sterilized with Carbolic Acid.

On the first appearance of Typhus, or any infectious disorder, in any place where persons are crowded together, great cleanliness should be

observed, and the rooms should be freely ventilated, by the admission of pure air, and the floors washed frequently with strong Soap-suds, and quickly wiped as dry as possible.

As a purifier, Carbolic Acid or Formalin are among the best, and may be bought at any apothecary store, with directions how to use them.

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## TYPHOID FEVER.

THE predisposing causes of Typhoid Fever, are all such as greatly depress the vital powers of the system, either temporarily or permanently, and we might say, with truth, that no person, unless originally of feeble vitality, or laboring under some cause that produces depression at the time of exposure, can have primary Typhoid Fever. It is true, that if the cause acting upon the system is very intense, the disease might be rapidly developed. When one really has got Typhoid Fever, the disease will run its course of three or four weeks, nothing, at present, being able to stop it. Often, people have many of the symptoms of Typhoid, but rapidly get well, *i. e.*, within two or three days. The Doctor takes the credit and says he has broken up a long spell of Fever, when, as a matter of fact, there is no such thing as "breaking up" an attack of Typhoid Fever.

To have Typoid Fever it is necessary that the very minute plant, called the "*Bacillus Typi Abdominalis*," gain entrance to the alimentary canal. No doubt it gains entrance to most everyone's digestive tract, but most people, being well and healthy, it finds no "foothold," as it were, and perishes. People who succumb to Typhoid infection must, at the time the Bacillus gained admission to the body, have been below par, *i. e.*, were not perfectly well, so that the Bacillus found good soil to grow and multiply in. (For a description of the Bacillus, see the section on Bacteriology.)

People sick with Typhoid Fever pass large numbers of these Bacilli in the stools; if this effluvia is not carefully destroyed the organism may find its way into a near-by spring, or water supply for a community, and everyone using this water for drinking purposes becomes exposed to Typhoid Fever.

If milk cans are washed with this same water, the organism gains entrance to the milk, in which it multiplies rapidly, and people drinking this milk are exposed to the disease. People who have to be about Typhoid Fever patients must be scrupulously clean, both with their own person and that of the patient. The bedding should not be allowed to become soiled, and the excreta should be destroyed by free use of Chloride of Lime, or Carbolic Acid.

It is seen how important it is to boil water and secure good milk when there is an epidemic of Typhoid Fever. The organism is probably never free in the air, so it is not inhaled into the lungs.

Symptoms.—The early stage is frequently of considerable duration in this disease, the symptoms being those of depression. The patient complains of languor and debility, with giddiness, dullness, and confusion of intellect, of uneasiness at the belly, and sometimes slight nausea; the appetite is impaired; a general sense of soreness and stiffness, with more or less pain in the back and limbs, are not unfrequent. These symptoms increasing for two or three days, the patient complains of slight chilly sensations, with coldness of extremities, which, becoming more marked, are alternated with flushes of heat. This chill lasts usually from six to eight hours, but sometimes is prolonged to one or two days; there is often more or less bleeding at the nose.

With the development of reaction, the pulse becomes frequent, full and open, or soft and weak, in some cases soft and easily compressed, or if of a nervous character, quick and sharp. The tongue is generally loaded with a dirty mucus, and is broad, soft, flabby, and moist, sometimes coated in the center, but with reddened tip and edges; there is considerable thirst. In some cases the tongue is heavily loaded, especially at the base, with bad taste in the mouth, and feeling of oppression and pain in the abdomen, especially low down on the right side. The urine is slightly diminished in quantity, appears turbid and dark, but does not deposit a sediment; the bowels are frequently natural as to frequency, but extremely susceptible to the action of medicine; the discharges thin, pale, and frothy. The temperature of the surface varies greatly; sometimes it is intensely hot and pungent, but more frequently, but slightly, increased with tendency to coldness of extremities. The countenance is dull, pallid, and shrunk, or transiently flushed; the eyes heavy and devoid of luster, and the head heavy, confused, and giddy. The patient sometimes exhibits great uneasiness, and is restless, changing his position frequently, but at others, is torpid, careless, and unimpressible. The respiration is frequently but little affected the first two or three days, but sometimes frequent and depressive. The temperature usually rises to 101° to 102° or higher.

By the fifth to the eighth day we notice that the head has become more affected, the mind is confused, the patient reasons with difficulty and answers slowly. Sometimes, even at this early period, we have a partial development of that dreamy delirium termed the Typhoid State. The respiration has now become affected, and is short and quick, or labored and depressed. In many cases ulceration of the bowels manifests itself; the bowels are irregular; two, three, or four evacuations in the twenty-four hours, watery, yellowish, clay-colored, frothy, and fetid. The urine is but little diminished in quantity, but is pale and frothy, resembling whey or new-made beer. The patient now begins to complain, in many cases, of tenderness of the bowels, and it will be found that pressure produces pain.

By the tenth or twelfth day, the bowels have become quite loose, the operations frequent and difficult to arrest, with increased tenderness on

pressure, and flatulent distention of the abdomen. The coating of the tongue has been gradually changing its color, and is now brown, somewhat fissured, or sometimes the coating has disappeared and the tongue is dry, red, and glossy; dark sordes commence to appear upon the teeth and lips. The Typhoid State has now become fully developed, the patient appears half-asleep, his mind wanders, he talks to himself of his business, his pleasures, or reveling in the chambers of memory he appears to be living his past life over. Sometimes this dreamy delirium is replaced by considerable restlessness; the patient appears to be in a profound stupor, but is aroused by the slightest sound, to immediately sink back into his former condition. About this time, though sometimes as early as the fifth day, the rose-colored eruption makes its appearance upon the abdomen; this eruption manifests itself in small rose-colored spots about the size of the head of a pin, the color disappears upon pressing the finger over them, but returns when the pressure is removed. The patient has now become so prostrated that he requires assistance to change his position.

From this to the twentieth day, the diarrhœa becomes worse, the discharges being dark, fetid, and very offensive, and the abdomen very much distended; the coating upon the tongue is almost black, and the teeth and lips covered with dark offensive excretions. The prostration is extreme, and the stupor profound. Frequently the heat of the surface sinks, the extremities being kept warm with the greatest difficulty; and sometimes a fetid perspiration. Small spots may sometimes make their appearance in the shape of purplish-red discolorations, not effaced by pressure; these extending, form large marks, like those produced by the strokes of a whip. The disposition of the patient is to lie flat upon his back, with tendency to slip down to the foot of the bed. The fæces and urine are now discharged involuntarily, or in some cases there is suppression of urine, which, if allowed to continue, will cause great distention of the bladder, with rapid prostration and death. Twitching of the tendons comes on, with picking of the bed-clothes, and finally result in extreme anxiety and excessive restlessness. At last, the vital power of the patient is so far exhausted, that there is no longer power to circulate the blood, and the patient dies.

This form of fever is not unfrequently complicated by low forms of inflammation of various organs, and as the symptoms are obscure in many cases, much care must be used to detect them.

Treatment.—The object of the treatment is to secure as near absolute rest for the intestines—because the disease is an ulceration of the intestines—as possible. This can only be secured by the recumbent position, in bed; by restricting the diet to the most digestible and least-irritating foods; and by keeping the patient as quiet as possible. Rest for the intestines being secured, the temperature must be kept down by cold sponge baths every two or three hours, or it may be necessary to resort to tub-baths. The heart must be watched and stimulated if it shows signs of weakness. Good

nursing is more important than medicines. The patient should not get out of bed for a movement of the bowels, a bed-pan being used for that purpose. At the commencement, two grains of Calomel should be given, but after that the bowels should only be moved by injections.

In other cases, we commence the use of the Aconite, in the proportion of 20 drops of the tincture of the root to $\frac{2}{3}$ of a tumbler of water, and administer a teaspoonful every hour. If the skin is hot and pungent, the Alkaline Sponge Bath should be employed, three or four times a day.

The dose of Aconite named is about the medium quantity; where there is evidence of congestion, it will have to be smaller; if the febrile reaction is vigorous, it may be increased. I do not desire a marked change under twenty-four hours, and many times not before forty-eight, or even seventy-two hours. We will notice that the above remedies, used in this way, gradually decrease the frequency of the pulse; but it becomes more full, stronger, and especially better in parts far from the heart, evincing greater strength. At last, the pulse coming down to eighty or ninety beats per minute, we observe evidence of commencing secretion. Then, if the patient shows no tendency to sleep, about nine or ten o'clock in the evening, when everything has become quiet, a sufficient dose of Opium should be given to induce sleep.

During this time the patient should be freely supplied with water, the diet being absolutely restricted to Milk diluted one-third with Lime Water. It cannot be too strongly impressed, that anything beyond this diet is injurious. If Milk cannot be borne, then a very thin Beef Tea may be substituted. The Milk and Lime Water should be given in small quantities, but often. Everything in the room and about the patient should be kept scrupulously clean, and the apartment thoroughly ventilated by admitting air from the sunny side of the house, and keeping an open fire in the room. Few persons should be in the room at a time, and the patient's mind kept calm. Especially should care be used not to excite expectant attention in the patient by secret movements, whispered conversation, or by failure of attention at the time expected. More depends upon this than is generally admitted by physicians. We cannot "kick Nature out of doors and depend upon the Materia Medica," as has been advised by a somewhat prominent physician.

If, at this time, there is torpor of the bowels, with indications that retained fæces are producing irritation, a mild Cathartic, carefully administered, will be advantageous—though a warm water injection is better—*under no other circumstances should Cathartics be employed.*

The Diarrhœa may be controlled, at first, by the employment of any of the mild astringents. Frequently the Subnitrate of Bismuth, in solution, with Peppermint Water and Turpentine, acts admirably in doses of three grains of the first, one to two drachms of the second, and ten to twenty drops of the third.

Tympanitis, or distention of the belly, is relieved by the local application of Turpentine, *i. e.*, a teaspoonful or two on cloths wrung out of hot water and applied to the abdomen.

If there is imminent danger to the patient, and especially if the discharges from the bowels are copious, I would administer Opium, with Camphor and warm aromatic Spices, the dose of the first being large enough to induce sleep, say from one to two grains.

Stimulants additional to those named are required in the advanced stage of the disease, but they must be administered with care; small quantities, frequently repeated, so as to keep up a continued influence, are beneficial; but, under no circumstances, should the system be over-stimulated by large doses, and the stimulant then stopped, for the prostration ensuing might be fatal. The best stimulants are, Alcohol, as Brandy or Whiskey, and Strychnine.

The patient's position should be frequently changed, the bed smoothed, and the cover straightened out. This is necessary to prevent injurious pressure on any part, which might give rise to Bed Sores; if any part becomes tender, with dark discolorations, or blanched white appearance, a weak Tincture of Arnica may be applied with advantage, the position being so changed as to remove the pressure from the part. If Bed Sores form, they should be washed with a solution of Sulphate of Zinc, from 10 to 20 grains to 1 ounce of Water, and a dressing of mild Zinc Ointment applied; the pressure being removed, this is generally sufficient for their cure.

Convalescence must be managed with great care, when the patient has been thus prostrated. Nourishing food of easy digestion, taken in small quantities, with gentle stimulants and tonics, pure air, light, and sunshine, are required. As convalescence becomes established, animal broths, with easily digested solid food, may be taken, but strictly controlled as to kind, quantity, and frequency.

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## YELLOW FEVER.

Having visited the West India Islands, and the southern and tropical climates, where this disease is generally located, I have, with the closest investigation, endeavored to trace out its causes and effects, and having suffered from it myself, I have acquired a thorough knowledge of both disease and treatment.

Yellow Fever prevails in, and is generally confined to, Africa, the West Indies, Mexico, bordering on the gulf, the Island of Cuba, and the southern portion of the United States, but extending occasionally as far north as Philadelphia, New York, and Boston; all of which places have been, from time to time, visited with the fearful ravages of this disease. The march

of Yellow Fever, like other epidemics, is uncertain. For instance, in New Orleans they are almost entirely free from this Fever during one summer, while the next summer may be one of great fatality. A few years ago, it raged with greater violence than any year since the discovery of the country.

The exciting causes of this disease are the exhalations from alluvial, marshy soil, and that too from ground or marshes subject to inundation and draining, particularly when heavy rains have fallen for some time, swelling the creeks, ponds, rivers, and overflowing the low country. The rains having ceased, the country becomes drained and exposed to the intense heat of the sun, when the Fever in due time makes its appearance, so that wherever this condition of country exists, Yellow Fever will prevail, and in proportion to the exciting causes, or state of the weather. Wherever there is Yellow Fever, there also is found every variety of Intermittent, and very generally all varieties of Remittent and Malarial Fevers. There is no doubt that there is a definite germ which is the primary cause of the disease, and as the disease ceases when frosts arrive, it is reasonable to assume that the germ is inhibited or killed by cold. As the disease seldom exists at high altitudes, or very far inland, it is also reasonable to assume that the germ inhabits low, moist districts. Dr. Sternberg, Surgeon-General of the United States Army, thinks he has discovered the germ of Yellow Fever, and probably he will prove his discovery shortly. The germ, alone, cannot produce Yellow Fever; it requires a suitable soil, in other words, a person must be below par, or must be exhausted, before the germ can "catch hold;" on the other hand, that Yellow Fever cannot exist without the germ, is deduced from the analogous Typhoid germ, the existence of which is a proven fact. The disease is infectious, but not contagious.

Dr. John Hastings, a distinguished surgeon of the United States Navy, says: "I have slept, for a considerable time, on repeated occasions (for want of better quarters) under the same roof and in immediate contiguity with patients laboring under every stage of the disease, from the first day of the attack to the last hour of existence. I have also cut myself with a scalpel when handling Black Vomit, and the other fluids and tissues of patients who died of Yellow Fever, and still suffered not the least inconvenience from this contact and exposure. (The only explanation that he did not contract the disease, is, that he must have been in excellent health, was fearless, or perhaps naturally immune. One attack of Yellow Fever is a preventative against future attacks, though there are exceptions to this rule.)

"Doubtless, the vitiation of the air, by means of these effluvia, is a strongly predisposing cause, in the same degree that an impure atmosphere from any other cause would be, and certainly is.

"Humanity demands that the idea of contagion should be discountenanced by the profession in every epidemic disorder, unless it be so

beyond the shadow of a doubt; since it calls forth the worst features of the human heart, in its ungovernable terror, and frequently causes even the mother to desert her dying child, and the sick and friendless stranger to languish, uncared for and shunned; yet we must admit the infectious nature of Yellow Fever."

The predisposing causes are numerous in this disease. Anything which disturbs the healthy and regular action of the system, predisposes to this Fever, especially exposure to the heat of the sun at mid-day, and the dews, excess in eating and drinking, particularly the latter. A spree in drinking is almost certain to lay open the system to the approach of the disease, since it brings with it many other imprudences equally dangerous, such as exposure to the sun, and cool, damp, night air. It cannot be too much inculcated, on those who visit tropical countries, that intemperance, is a most pernicious and fatal practice.

Dr. Dewees, in his account of the epidemic that raged in Philadelphia, in the year 1793, says: "It has always been remarked that during the prevalence of Yellow Fever, persons newly married are constantly its victims; also to tipplers and drunkards, to those who lived high and were of a corpulent habit of body, this disorder was very fatal. The recovery of such persons was very rare, and it is likewise the case with those who labor hard, or take too violent exercise."

Breathing impure air, is a predisposing cause to this disease; thus an atmosphere laden with particles of vitiated matter is highly predisposing to the fever, from its deleterious effect upon the general health of the system.

Constipation is a predisposing cause, and therefore great attention should be paid to keep the bowels in regular and healthy action. Fear, or great disturbance of the nervous system from any cause, may produce this disease, and it is probable that it may lie dormant in the system for many days. Dr. Luzenberg, of New Orleans, mentions a very singular case on this point. He states that "In the month of February, 1844, there were received into the Marine Hospital two sailors with Yellow Fever, who had arrived from the West Indies, and who did not fall sick until they touched at Balize, thirteen days after their departure." It usually develops within three or four days after exposure, though it may develop within twenty-four hours, or the period may be extended to two weeks.

Symptoms.—The first symptoms of Yellow Fever are felt twenty-four or forty-eight hours before its attack; the person feels a giddy, swimming sensation of the head; the bowels are costive, slight aching of the limbs. In some cases, the commencement of the disease almost resembles Hysterics, from the disturbed state of the nervous system; but most generally the disease attacks by sudden sickness at the stomach, with vomiting; violent pain in the head, back part of the lower extremities, knee-joints, down the front part of the legs, and a creeping sensation down the backbone, with a slight chill. The countenance is flushed and swollen, the eyes look full and

injected with blood, and of a singular, glassy appearance, with a stupid, heavy, anxious expression of countenance, which once seen can never be forgotten. The tongue is moist and covered with a white fur, with tip and edges of a pinkish color; bowels bound; pulse small—sometimes you can barely feel it; skin cool. These symptoms continue six or eight hours; patient still continues to feel a sensation of coldness even when wrapped in blankets, and the skin to the touch of another is quite warm. The face assumes a characteristic expression, with shining, staring, watery eyes, and red cheeks.

After these symptoms of the cold stage, a burning heat of the skin follows, with violent pains in the small of the back, and aggravation of all the other symptoms; slight pain from pressure over the stomach; vomiting continued from time to time, though never very severe, or causing much pain; the contents of the stomach are thrown up in an unaltered condition, as they were taken twenty-four hours before; when this is the case, it shows the deranged powers of digestion, and that it will be a severe case. After a few hours, the matter vomited becomes smaller in quantity, of a green color, and bitter, consisting almost of pure bile. The tongue gradually becomes covered with a yellow fur, the tip and edges becoming red; a severe, throbbing pain shoots across the temples, with strong pulsations or throbbings of the temporal arteries. The pain in the small of the back greatly increases, and is generally more severe than the pain of the head; great restlessness, with loss of sleep; no appetite; bowels generally bound, but not always—if this is the case, the urine is of a dark color, and diminished in quantity, but sometimes the urine is passed in large quantities and of a light color; the skin is very hot, dry, and flushed; pulses small and frequent, but not quick, being generally from eighty to ninety pulsations in a minute—it is mostly a masked pulse—one though not strong, yet indicating strength, that is to say, a pulse which conveys the impression to the touch and mind of being restrained, not having the power of developing itself in its full force. Often it is observed to be full, strong, and bounding, with great force, but without frequency. At this time insatiable thirst comes on, and continues throughout the disease, giving more annoyance to the patient than all the others.

There is very little loss of strength experienced by those affected with this Fever. So little is it felt, that one of the greatest difficulties in managing these cases, is to keep the patients quiet in bed. They have a constant disposition to move about and tell you they feel "Very well," as if nothing were the matter. This often occurs in some of the most fatal and intractable cases; hence, much harm is frequently done by allowing persons to move about in these "walking cases of Fever," as they are called; which are not uncommon. Notwithstanding this moving about, the disease is not altered or interrupted in its course, but proceeds regularly, step by step, and occasions dissolution generally upon a certain day. This feature

of the disease, I suspect, has often given rise to the belief that patients have died of Yellow Fever, after twenty-four or forty-eight hours' illness, because they were seen at this period for the first time, or had not been longer confined to their beds. The symptoms are often so mild, that they are quite neglected, when prompt and early treatment would afford relief; but many continue moving about in this restless state, and, by this neglect, often render a case fatal, that would otherwise be susceptible of cure.

During the first twenty-four hours of the hot stage, there is often a well-marked remission in the Fever. The skin becomes cooler and the pulse more natural, with an abatement of all the symptoms, and it is not unusual to have the skin even moist with perspiration. Yet the remission is of very short duration, when all the symptoms return with their original force. Thus the disease continues in its course, without remission, for about ninety-six hours, or until the commencement of the fifth day, when a rapid change occurs. Then the tongue and lips become dry and covered with a dark crust, particularly the center of the tongue, its tips and edges looking like raw beef. The vomiting becomes more frequent, but without much effort; the matter ejected assuming a glairy mucus appearance, with an occasional dark thread or spot mixed with it. The whites of the eyes have a yellowish hue, and the skin begins to take the same shade. The bowels are moved occasionally, stools being dark-colored and liquid, passed in some cases very often. The mind at this time begins to give away; the patient comprehends slowly, and looks at one with a bewildered expression, before he gives an answer.

By the sixth day (sometimes commencing on the fifth), there is a disposition to sleep, medically called *Coma*, from which the patient is roused with a wild stare; the mind totters thus until it is entirely lost.

Toward the close of the sixth, or beginning of the seventh day, there is an occasional vomiting of dark brown or blackish matter, in a glairy mucus, which has been very correctly likened to coffee-grounds, to which it bears a striking resemblance. This vomiting of black matter, called the Black Vomit, continues till death; it is ejected without difficulty, and frequently in large quantities; its appearance frequently alarms the patient, if he be conscious, and, for the first time during his illness, he begins to think himself in danger. This coffee-ground material is blood which has been acted upon by the gastric juice; the blood comes from little hemorrhages scattered over the stomach wall.

There is, frequently, from the fifth to the seventh day, hiccough; bleeding from the gums and mouth, which dries upon the lips and tongue; and stoppage of the urine.

Toward the close of the seventh day, there is deep, heavy stupor, and low muttering; the patient becomes restless, and frequently throws himself about; body becomes of a yellow color; the features contracted or pinched; sometimes most violent convulsions or fits, but generally it

does not pass beyond mere restlessness; but still I have seen these convulsions or fits so severe, during the last hours of existence, that it required four or five stout men to keep the dying man upon his bed. Most generally, the patient dies on the seventh day, yet in some instances death occurs at a later period.

I have now explained the regular course of this disease, to its latest termination. In some instances, where the persons are of a plethoric, full habit, and short neck, predisposed to Apoplexy, or Diseases of the Heart, or other conditions of ill health, previous to an attack of Fever, their death frequently occurs upon the third or fourth day. But when these incidental circumstances do not interrupt the regular progress of the disease, death occurs on the seventh day.

The Rev. Theodore Clapp, of New Orleans, one of the most distinguished and brilliant of men, and conspicuous for his learning and philanthropy—a resident for twenty years of that city—says that he has witnessed eleven epidemic Yellow Fever years, carrying to a sudden grave never less than three thousand human beings, and often five thousand. Within that space of twenty years, one hundred thousand human beings had found a grave in New Orleans, and of that immense host, twenty-five thousand were young men between the ages of eighteen and twenty-five years, each one being the representative of some distant family.

What a fearful and melancholy picture of the ravages of the dread destroyer of the South, the Yellow Fever! One hundred thousand deaths! Oh! how many hearts have been crushed, and how many homes made desolate, by the stern and relentless edict of the fell tyrant! Humanity shudders at the scene.

Treatment.—There is no general agreement among medical men in controlling that dreadful disease, Yellow Fever, which has lost none of its ancient terrors. The blow with which it strikes down its victims to-day, in New Orleans, is as unerring and resistless as it was half a century ago, at Cadiz, or Gibraltar, although many medical men assert that they have ascertained the best and most effectual means of combating and controlling this diease, of diminishing its severity, and preventing its fatal issue. Dr. Rush, the great advocate of the lancet, and who bled upon almost every occasion, said, that during the great Philadelphia epidemic of 1793, at no time did he fairly lose more than one in twenty of his patients. He was one of the stanchest champions of the lancet in Yellow Fever; he stood by it through evil and through good report. In his account of Fever in the year 1794, in Philadelphia, he gives a statement of his bleeding in twenty-three cases. He is said to have bled Dr. Physic, of Philadelphia, to the amount of one hundred and seventy-six ounces. This bold and dangerous practice of using the lancet, is now considered improper and unsafe, and in nearly all cases extremely dangerous. The most that can be said in its favor is, that if the patient attacked with this Fever be a powerful, strong

man, with violent pain in the head and back, hard, throbbing pulse, with strongly marked inflammatory symptoms, one plentiful bleeding may be of infinite service, if done in the first twelve hours. Except in these circumstances just mentioned, I consider it extremely dangerous; and perhaps useless under any circumstances.

As a means of reducing the active excitement, in the first stage of this disease, as a substitute for the lancet, you will find Cold Water, poured over the body, a highly valuable remedy. It gives relief in the great heat of the skin which accompanies this Fever, and in the tormenting thirst, distressing headache, and pain and irritability of the stomach. Although the relief is sometimes partial and transient, yet this remedy should be repeated as often as necessary, as no danger or injury is to be apprehended from it. The proper time for giving this affusion of Cold Water is at the end of the chill, if there be one, when the patient's face becomes flushed, and the surface of the skin dry and hot—a condition that almost invariably attends this form of Fever. Seat the patient in some convenient vessel, and pour rapidly, from some slight elevation, upon his head and shoulders, and over his naked body, a full, large stream of Cold Water, continuing it until his face becomes pale, or his pulse sinks. In general, the sick man will express his delight at the ease which follows it, and will ask you frequently to repeat it. I have never yet seen any unpleasant consequences from it; even children and women reconcile themselves readily to the shock, and regard it as pleasurable rather than otherwise. The surface of the body should now be rubbed dry, and the patient, on lying down, covered so as to be comfortably warm. Of course, if a Bath Tub is accessible, a complete immersion in water at about 75° to 85° is the best way to apply the Cold Water; these Baths may be repeated every two hours, if the pulse does not show signs of weakening.

You must remember that in the commencement of this disease, a good Cathartic, or Purge, of an active kind, should be given, followed by Salts, so as to open the bowels freely, which will generally afford relief. If the bowels be not open daily, they should be injected with a pint of warm "Soap-suds," or with an ounce of Glycerine to a pint of water. If the stomach is full at the outset an emetic of Ipecac should be given.

Dr. Nott, of Mobile, has for several years been in the habit of administering Creosote during the febrile stage. He says that after opening the bowels, he puts 20 drops of Creosote to 6 ounces of Spirit of Mindererus, with Alcohol enough to dissolve the Creosote, and then give half an ounce every two hours. This remedy is considered one of the most valuable known for arresting the disposition to vomit and retch. Cold applications, such as Ice-water, should be kept constantly applied to the head during Fever, and Ice or Ice-water kept in the mouth to allay thirst, but should not be swallowed in large quantities, for it is all-important to keep the stomach perfectly quiet.

Where the skin becomes hot and dry remember that it should be sponged with Cold Water and Salt, to relieve the pain in the small of the back, which the patient feels most severely. Mustard Plasters should be applied along the spine or backbone, which will give relief. Be particular and attend strictly to the change of this disease from the second to the third stage, which is to be met with an active stimulating treatment, as the administering of Brandy This is to be cautiously given, in small quantities, until it is ascertained that the patient has a relish for it, when it may be given freely until the depressing tendency of the disease is fully arrested.

After the restlessness has moderated, and the pulse rallied or improved, you are to continue to use the Brandy or Wine, in such quantities as may be necessary to sustain the patient. After the liberal use of Brandy, *small quantities* of Chicken, Oyster Broth, or Milk may be very cautiously given. If retained by the stomach, then one's fears may lessen as to the approach of Black Vomit—yet be prudent and cautious as to this matter. Where there are, however, threatenings of Black Vomit, Spanish physicians apply Vinegar and Mustard Poultice over the pit of the stomach.

Having had opportunities of seeing much of this disease in Havana, and on the coast of Spain as well as in the Mediterranean, where it prevails extensively, I will give the treatment generally adopted by the Spanish physicians It consists in the use of mild and cooling laxatives, such as Super-tartrate of Potassa, or Cream of Tartar, and drinks of Tamarind Water, Lemonade, and sub-acid drinks, with tea made from Orange-flowers and, in the cold stage, a Mustard Bath. The Spanish practitioners are violently opposed to the lancet and Mercury.

Dr. Flores, at Cadiz, in 1813, at his first visit, which was usually in the evening or night, ordered an injection of Sweet Oil, warm Aromatic or Spiced Drinks, and the application of Mustard Plasters to the feet. Next morning he gave a powder, composed of 10 grains of Calomel and 10 of Jalap, with Barley-water or light Broth, followed, if necessary, by an Enema, so as to promote the action of the medicine Five grains of Calomel is sufficient, and no Jalap is necessary. It may be well to give a small dose of Salts in the morning, so as to drive the Calomel out.

If the patient vomited, and the stomach was very irritable, the Calomel was given in divided doses, made into pills, until it operated on the bowels freely, which was generally followed by relief, affording tranquillity, mitigation of local pains, and perspiration. On the approach of the third stage, Animal Broths, Barley-water, Sago, and Wine, were administered, to afford strength to the system. If there were threatenings of Black Vomit, Vinegar and Mustard Poultices were applied to the pit of the stomach, and injections given of Salt and Water

I close these remarks with my own views in relation to this disease and treatment, preferring to all others the French method, which is very simple On the first attack of the disease, place the patient's feet and legs in

a warm Mustard Bath, and give hot Teas to drink; after which place in a bed and cover with warm blankets, or place between warm blankets, so as to produce a sweat as soon as possible, for early perspiration is an important remedy in arresting this Fever. After the sweating stage is over, give a dose of Calomel of 2 grains.* Too much purging prostrates the system. Cooling Clysters are very valuable. If the Calomel does not act on the bowels, I promote its action by the use of Epsom Salts.

Remember that in the second stage of the disease, no active system of practice is to be pursued, except cooling and stimulating drinks. The third stage is to be carefully watched and met with active, stimulating treatment, consisting of Wine, Brandy, etc., which may be cautiously given until the depressing or sinking tendencies of the disease are stopped. The disposition to vomit or retch after opening the bowels, which is generally the case, is to be stopped by the mixture used by Dr. Nott, and a Vinegar and Mustard Poultice applied to the pit of the stomach. Be cautious, always, in giving small quantities of nourishment, such as Barley-water, Chicken or Oyster Broth, in such quantities as may be retained by the stomach, as this organ is very irritable in this disease. Do not let the patient get up too early, lest he have a relapse, for experience has proved that it is impossible to cut short a grave and serious case of Yellow Fever. Nine cases in ten die by getting out of bed too soon, or by eating too soon. The diet should consist of liquids only for two weeks after convalescence commences.

I feel a firm conviction of the truth and correctness of my remarks in relation to simplicity in the treatment of this disease, for the more simple the treatment is, the better, and there is no disease more entirely under the control of medical treatment than Yellow Fever: nor is there any one more imperatively demanding early attention in the use of those simple remedies I have mentioned. When convalescence takes place, if possible, the person should not remain in the same climate, for any length of time, exposed to the exciting cause.

In connection with this subject, I must mention, for the prevention of this fever on board ships, that captains of vessels should prepare themselves with Chloride of Lime, which is an important agent in purifying all places inaccessible by the scrubbing brush, and in destroying the noxious effluvia in crowded apartments. Every part of the ship should be kept free from filth. The Chloride, mixed with water, should be poured into the pump-wells, and distributed throughout the holds, chain-lockers, berth deck, and other parts of the ship. That great cleanliness temperance, and cheerfulness ward off this disease to a great extent, there cannot be the slightest doubt. Music, though not often regarded as a preventive, is in my opinion an important aid, for it places the system through the influence of the common sensorium, in a favorable condition to resist the

*Instead of the Calomel use two grains of Podophyllin; and instead of Blue Pills use the Cathartic Liver Pills.

action of the morbific causes; so will the smoking of tobacco keep off the Fever, in what are called miasmatic situations. In an infected atmosphere, anything which purifies it, to an experienced person, must give full evidence of its utility as a preventive of all fevers, particularly of the one now under consideration.

It is curious, as connected with this disease, to trace the various medical opinions in relation to the origin of Yellow Fever, and the causes which produce it. We are, however, convinced that in warm climates this disease more assuredly prevails at certain seasons of the year, in low, wet, marshy districts, depending, as to time, in a great measure, on the peculiar state of the atmosphere, and the various changes that may occur during the season. It is essential in all seaports, to establish quarantine regulations, else vessels from Havana, and other places in the tropics, where Yellow Fevers annually prevail, may come directly to the various cities, with their cargoes, having their vessels reeking with foul air, which, mingling with a hot and humid atmosphere, soon spreads, and combined with the causes I have before mentioned, the epidemic will prevail through cities, which otherwise would have been exempt, or nearly so.

With a few remarks I shall close this subject, and it will be well for the afflicted to attend to these instructions.

In all cases of bad Fever, few drugs will be found of much avail. Absolute quiet is essential. A bed-pan should be used for the bowels. The urine should be passed in a bottle while the patient is in the recumbent position. It is better to draw the urine with a catheter than to permit the patient to move so much as to get up for the purpose of urinating. Nourishment should be liquid, and taken through a tube, with the same object in view—that of keeping the patient quiet.

Suppression of urine, *i. e.*, failure of the kidneys to act, is very troublesome. Mustard Plasters should be applied to the back, over the kidneys, and a pint of Salt Water should be injected into the rectum every two hours. Brandy may be added to the salt water.

At present an anti-toxic serum is being experimented with, which promises much as a cure for Yellow Fever.

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## SCARLET FEVER.

This disease is medically called *Scarlatina*, and breaks out in spots or blotches, which are called eruptive, making their appearance on the surface of the body, of a scarlet or red color. The rash, or reddish color, may be compared to staining the skin with poke-berries, to which it bears a very striking resemblance. These spots or blotches appear generally between the second and sixth day, accompanied by Fever and Sore Throat, and usually terminating between the seventh and tenth day.

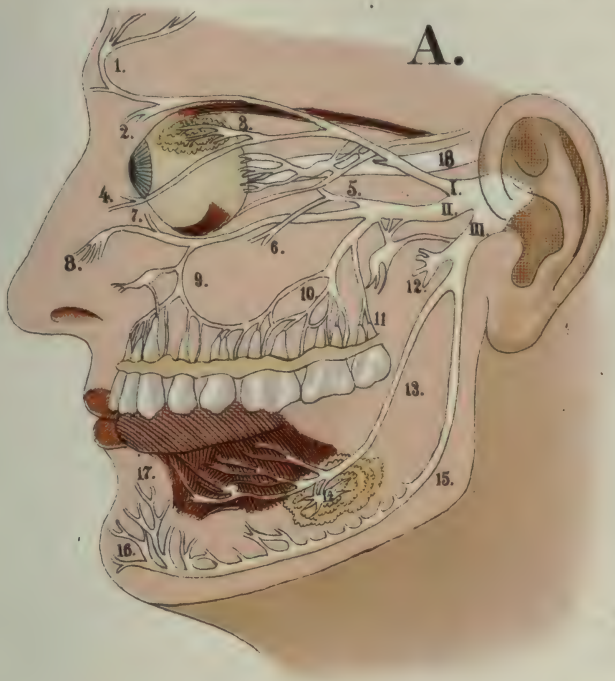
The inflammation in the worst forms of Scarlet Fever, runs into ulceration and sloughing. It is usually divided medically into two forms, viz.: 1st. *Scarlatina Simplex*, which means simple Scarlet Fever; in this stage of the disease the throat is not affected. 2d. *Anginosa*, if the throat be sore and ulcerated.

The two forms of this disease are essentially the same, only varying in the degree of severity; they are always liable to be modified by circumstances, which may cause one to merge gradually into the other, and the disorder, from being slight at first, may gradually, if not properly and in due time attended to, become severe. The treatment in this disease is simple, and, according to my experience, generally successful. The temperature goes up to 102° to 105°; in severe cases it is even higher.

Symptoms.—Should the attack be mild, the symptoms will commence with slight Fever. The eruption appears, generally, on the second or third day, first about the neck and face, in the form of innumerable red spots, which, in twenty-four hours or less, cover the whole body. Upon the limbs, but especially about the fingers, there is a continued redness, but on the trunk of the body the rash is distributed in irregular patches. The color of the eruption is a bright scarlet, being always most distinct about the loins and bendings of the joints. The redness spreads over the surface of the mouth. The tongue is furred in the center, while the edges and point are of a brilliant scarlet color; the eruption is most plain toward evening. As the fever increases, sometimes there is vomiting, generally accompanied with headache, thirst, and restlessness. On the third day, generally, the whole surface of the body is of a bright red color, hot and dry. The eruption is at its height on the fourth day; it begins to decline on the fifth, when these patches widen, and the florid or red hue begins to fade; on the sixth day, the rash is very indistinct; and on the eighth day, it is generally entirely gone. After this the disease begins to disappear, the skin then peals off in scales, and it generally terminates in about a week. The symptoms I have described are those which constitute the milder form of Scarlet Fever; but in the more severe form may be added a greater sensation of weakness; the Fever increases, with slight delirium, breathing difficult, thirst very great, with very sore throat; and in some constitutions this complaint is dangerous, requiring prompt and strict attention. The pulse in children is invariably very rapid, frequently numbering one hundred and forty or fifty in a minute; and in grown persons, or adults, one hundred and twenty or thirty. The artery feels small, and the beat is rather soft, and often obscure, though sometimes hard and wiry. The symptom which is the most constant in this affection—the one without which, in fact, the disease never exists—is a peculiar inflammation of the throat, which almost immediately runs into a state of ulceration. Upon pressing down the tongue with the handle of a spoon, and looking into the mouth, the palate and throat, as far as can be seen, appear swollen and of

# THE EYE.

**A**—The trigeminal nerve (V, brain nerve) and its most important branches.




**I. First branch (sensory):**

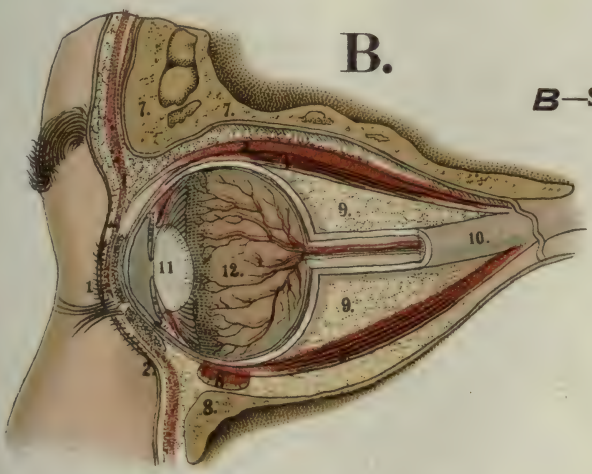
1. Frontal nerve.
2. Nerve of the upper eye-lid.
3. Nerve of the lachrymal passages.
4. Nerve of the sinus of external eye

**II. Second branch (sensory):**

5, 6. Nerves of the cheek-bone.
7. Nerve of the lower eye-lid.
8. Nerve of the upper nasal sinuses and the upper lips.
9. Nerve of the upper front teeth.
10. Nerve of the upper back teeth.
11. Special nerve of the wisdom tooth.

**III. Third branch:**

12. Pre-eminent groups of motor nerveh for the muscles of mastication, for the jaw-bone, the temporal muscles and the muscles of the cheek.
13. The lingual nerve.
14. Ganglion of the submaxillary salivary gland.
15. Submaxillary nerve, small branches reaching down into the teeth of the lower jaw.
16. Nerves of the chin.
17. Nerves of the lower lips.
18. The optic nerve (II, brain nerve).




**B**—Section of the apparatus of vision.

1. Upper eye-lid.
2. Lower eye-lid.
3. Opener of slit of the eye-lids.
4. Upper straight eye muscle.
5. Lower straight eye muscle.
6. Lower transverse eye muscle.
7. Bones of upper orbit.
8. Bones of lower orbit.
9. Fatty cushion.
10. Optic nerve.
11. Crystalline lens.
12. Vitreous body.

a deep florid color, and upon one or both tonsils may be seen whitish or grayish ulcers. These ulcers are sometimes small, and are usually confined to the tonsils or glands, on each side of the throat, and they occasionally extend to the uvula, part of the soft palate, and to other parts of the throat and mouth. The inflammation, and consequent swelling and ulceration of the throat, is one of the most troublesome symptoms attendant upon the disease, a great and painful difficulty in swallowing. The difficulty is in some cases so great, as to render it impossible to get anything into the stomach; liquids being frequently ejected through the nostrils. In some cases, however, swallowing is performed without pain or difficulty.

There is, however, a great accumulation of mucus or phlegm, which is constantly gathering in the throat, and in children produces a disagreeable rattling noise in breathing. This is caused by the passage of the air through the accumulated phlegm, which is constantly being forced forward and discharged from the nose. This symptom continues a number of days, and frequently gives to the family much unnecessary alarm. Sometimes the inflammation extends to the ear, and causes pain and swelling of the glands under the jaw and on the throat; and after the Fever has subsided, they either gradually disappear or go on to suppuration, and finally heal and discharge their contents outwardly. When these abscesses form and discharge through the ear, they frequently produce a degree of deafness.

Scarlet Fever runs its course with great regularity, and may be termed a self-limited disease. The eruption appears on the second day, and continues, with but little visible alteration, until about the seventh day, when it begins to fade, and generally, if no severe effects have occurred from the violence of the Fever, on the ninth day the patient may be considered out of danger.

Scarlet Fever may be known from Measles, which it greatly resembles, by the absence of cough and other apparent symptoms of cold, and also by the appearance of the eruption, it being more of a scarlet color. and the dots smaller, and by its appearing on the second instead of the fourth day; by the ulcerations in the throat, and the prevailing epidemic.

If Measles be known to be about, or the patient has been exposed to this contagion, we may suspect the disease to be Measles; but if three has been no exposure, or if the patient has previously had the disorder, there will be no difficulty in forming a correct opinion as to the nature of the disease.

There is and has been considerable and various opinions as to this complaint, whether it is contagious. Judging from my own experience and observation, which has been by no means limited, I am inclined to the opinion that it is, in a greater or less degree, contagious or catching, and would recommend that all reasonable means should be used to prevent it from spreading in that way, by keeping the sick and those who are well separate as much as circumstances will permit. The uniformity with which

this complaint has made its appearance about the fifth day, after exposure to the contagion, has been to my mind one of the strongest proofs of its contagious character; for, a number of cases, during my long practice, have fully satisfied me that the disease originated in this manner. And it is well known to every observer, that all persons are not equally susceptible to the contagion, and, though one may take it, another, who is equally exposed, may not take it. This disease is mostly confined to infancy and youth, though the susceptibility to it is not extinct at thirty or forty years; but it very rarely attacks persons over thirty, and when it does, it is generally mild, and not often dangerous. A person who has had it once may take it again, but this is very seldom the case; if so, it must be owing to some peculiar susceptibility of the constitution, or predisposition. A second attack, however, is generally less severe than the first.

The cause of Scarlet Fever, after every investigation, is not known. It appears in all seasons of the year, but is more frequent in cold, wet, or damp weather. In all probability it is a specific germ infection which has not yet been discovered, but will undoubtedly soon be.

This complaint prevails EPIDEMICALLY like known germ diseases.

TREATMENT.—The treatment in Scarlet Fever should generally be confined to very mild measures, confinement to a room of an agreeable temperature to the feelings of the patient, avoiding cold or draughts of air, and the drinks cool, after the cold stage has passed off. During the continuance of the cold stage, warm drinks, so as to produce perspiration, may be given very freely if the stomach will retain them; but should the stomach be irritable and the vomiting frequent, very small quantities of liquids only should be allowed, and these must be of a nature calculated to allay the sickness. For this purpose, Spearmint or cold Ice Water, or Soda Water, are among the most suitable. A Mustard Poultice applied over the pit of the stomach, is often a valuable remedy for the sickness and vomiting.

In the first stage of this disease, the most important thing to be done is to bathe the feet and hands in Hot Water, and continue this for the first two or three days, repeating it two or three times a day. In applying the Bath, great care should be observed so as to prevent the patient from getting cold; after which he should be quickly wiped dry and placed in bed comfortably warm. Should this disease be attended by headache, or costive or confined bowels, some gentle purgative may be given, as Epsom Salts or Seidlitz Powders; remembering that any powerful Emetics or active Cathartics are not only unnecessary, but decidedly injurious in every stage of the disease.

The second, or eruptive stage of the Fever, may be reckoned from the second or the third to the seventh or eighth day, during which time the patient should be kept perfectly quiet, in an agreeable, pleasant room, from which the light should be excluded. The bed clothes, as well as the inner clothing, should be frequently changed; and every attention paid to

cleanliness, airing the room, and the general comfort of the patient. No solid food of any kind should be allowed, nothing but light diet; and as the thirst is usually great, give, in reasonable quantities, Cold Water, Lemonade, Tamarind Water, Soda Water, or Rice Water; and any cooling drinks may be allowed freely as the means of contributing to the comfort of the patient. If the temperature is very high, cool Sponge Baths may be given every four hours or oftener. In mild cases this disease requires only confinement of the patient to a comfortable temperature, with low diet and cooling drinks, and the use of the Cold Bath, two or three times a day; which in nineteen cases in twenty will effect a cure.

Emetics may be found useful in the commencement, and sometimes through the whole course of the Fever. None will have a better effect than Ipecac, in suitable doses, according to the age of the patient. (See Table for Dose.) It is not always necessary, however, to give an Emetic, but if there be soreness of the throat, and a gathering of mucus or phlegm in the throat, impeding respiration, a mild Emetic will have a very beneficial effect. When given in the forming stage of the disease, or at a very early period, it lessens the Fever, and prevents it from becoming violent. The close and intimate connection which exists between the stomach and skin is so great, that if a healthy action be exerted or produced on one, the other experiences a good effect. Emetics are very serviceable in cleansing and removing the mucus or phlegm in the throat, which generally exists at this stage of the disease.

Purgatives in this, as in other Fevers, may prove useful, for they moderate arterial action, relieve the pain in the head, prevent delirium, and remove the morbid secretions of the liver, stomach, and whole alimentary canal. It must be recollected that children, among whom Scarlet Fever generally prevails, must have their bowels properly attended to. It will be found that in cleansing the stomach and bowels with one or two gentle purgatives—the dose to be in proportion to the age of the patient—much benefit frequently will result. The compound infusion of Senna and Manna, an excellent and simple medicine, and preferable to Castor Oil or Salts, particularly where there is nausea or sickness of the stomach, is the best. In the mild form of this disease simple purgatives, tepid bathing, cooling drinks, free air, a light diet, with rest, are, in general, all that is required. In the first three days of the disease, I have found cold affusions, purgatives, and cold drinks, truly beneficial. After the third day, the affusions, or bathing, should be tepid, unless the general excitement and heat of the skin still remain very considerable. The skin must be above the natural temperature and dry, when you make use of cold bathing.

Dr. John Eberle, Professor of the Theory and Practice of Medicine in the Jefferson Medical College of Philadelphia, says the application of Cold Water to the surface of the body cannot be too strongly recommended, in higher grades of this disease. In his late medical work, he quotes the fol-

lowing passage from Dr. Bateman, a distinguished physician: "As far as my experience has taught me, we have no physical agent by which the functions of the animal economy are controlled, with so much certainty, safety, and promptitude, as by the application of Cold Water to the skin, under the increased heat in Scarlet Fever, and, in truth, in all forms of disease, where there is great heat. This remedy combines in itself all the medical properties which are indicated in this state of disease, and which we should scarcely expect it to possess, for it is not only the most effectual febrifuge, or cooling remedy, but is, in fact, the only sudorific, or sweating agent, which can be relied upon, and will not disappoint the expectation of the practitioner." "I have had," says this eminent physician, "many opportunities of witnessing the immediate improvement of the symptoms, and the rapid change of countenance, produced in the patient by washing the skin with Cold Water."

One of the simplest, and yet one of the most effectual, plans of treatment, is to give one teaspoonful every hour of the following combination: Take Tincture of Aconite, 20 drops; Tincture of Belladonna, 20 drops; Muriate of Ammonia, ½ drachm; Water, 4 ounces. The bowels should be gently opened, and the entire surface of the body washed frequently with Castile Soap and Water tepid. For the throat, nothing is better than a flannel cloth wrung out of Cold Water and applied, and covered with a dry one. It may be changed every hour or two.

As a gargle, the following combination will be found one of the best: Take Chlorate of Potash and Muriate of Ammonia, equal parts, ½ drachm; Water, 3 ounces, and Glycerine, 1 ounce. The throat should be thoroughly washed with this every two or three hours.

Swelling of the throat externally, frequently comes on during the disease, and if not promptly treated, goes on to suppuration. To prevent this, I would recommend the bathing of the part frequently with Ice Water, or to keep an Ice Bag constantly applied. If the pain becomes intense, a clean cloth dipped in a hot mixture composed of the following: an ounce of dilute Lead Water and a drachm of Tincture of Opium, will give great relief.

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## SPOTTED FEVER—CEREBRO-SPINAL MENINGITIS.

A NEW disease has appeared in this country, and is called Spotted Fever, from the peculiar eruption that comes out upon the skin. We speak of it as a new disease, because it is so termed by physicians; and yet it has been known for hundreds of years. The first account we have of it was in 1505, when it spread over Europe; again it made its appearance in 1528, and was followed by the Plague; and in 1556, it was attended with

great mortality. It reappeared in 1592, and subsequently about every thirty years, up to 1805. Its first appearance in this country was at Medway, Massachusetts, in March, 1806; and from that period to the year 1815, it was met with throughout the United States, though chiefly confined to New England.

During the last century it is said to have followed the great European armies, among which it made great ravages. So intimately was it associated with war that the Germans applied to it the name of *War Fever*, or *War Plague*. Though reappearing since, during the largest and most eventful war of which we have record, we cannot trace any relationship between the two, for it has appeared in peaceful localities, and not in our armies or hospitals.

The disease is infectious but not contagious. It is caused by a peculiar little germ which grows in the membranes that line the spinal cord and brain.

The symptoms of the disease in 1805 were similar to what they are now. In its course all the functions of the body were more or less interrupted, and often some of them were entirely suspended. The patient is seized in the midst of his usual labor, and oftentimes struck down suddenly, almost as by a stroke of lightning. The first symptoms are local pain or paralysis, delirium, or stupor, and, rarely, spasms or convulsions. The disease often commences with shifting pains; the patient suddenly feels a pain in one joint or limb, in a finger or toe, in the side, stomach, back, neck, or head. Sometimes mild, but at others so intense as to demand immediate attention. Often there is constantly increasing soreness, stiffness and pain in the back, extending up to the base of the brain, and when the disease is fully developed, the pain starts from the back, and is attended with partial convulsions.

In some instances the disease progresses rapidly; the patient in the morning is apparently well, except slight soreness of the back, and muscles. The pain in the back increases; a chill comes, followed by high fever; the sufferer gradually becoming unconscious, with sometimes convulsions, death occurring perhaps within twenty-four or forty-eight hours. An eruption appears during the last hours, of light red spots, from a pin's head in size to that of a split pea; as the patient gets worse, these become darker and larger, and after death are livid, and numerous, so that the skin seems to be mottled.

In other cases the disease is not nearly so severe, and runs a much slower course. For two or three days the patient is listless, dull, and stupid; the face is flushed and dusky, eyes tumid, some pain in the head and back, loss of appetite, tongue dusky red and coated with a dirty mucus. He is still able to go about, but feels badly. On the second or third day there is a well-marked chill, lasting for two or three hours, and attended with marked prostration. Following this, is febrile reaction, sometimes high, at others

not very well marked. In the one case the surface becomes intensely hot and flushed; the pulse 120 to 140, sharp and hard; with great irritability and restlessness, though there is marked dullness of the mind; the bowels are constipated, and urine scanty. In from two to six days, the Fever continuing, an eruption appears upon the surface, very closely resembling Measles, though more distinct. If the patient recovers, the spots commence fading out by the end of the first twenty-four hours, but do not entirely disappear for some days; if the disease progresses to a fatal termination, they become dusky, and at last livid, and of considerable size. As they become livid, the patient loses his consciousness, and soon sinks into a stupor from which he cannot be aroused.

Diagnosis.—The characteristic symptoms of Spotted Fever are, pain in the back and head, and various parts of the body, with very great and unnatural loss of strength. The head is usually drawn far back, sometimes almost touching the shoulders.

Treatment.—We would advise that a good physician should be immediately sent for, though frequently it will not do to wait for his arrival. Make cold applications of Ice Water or Ice to the back of the head and along the spine. If the temperature is high, cool baths may be given every three or four hours. Morphine should be given as often as necessary.

Diet should be of liquids; there may be some difficulty in swallowing, in which case it may be necessary to feed by introducing predigested food into the rectum.

When the disease runs slower, treat it as a Typhus or Typhoid Fever; after this move the bowels, bathe the feet thoroughly in Mustard and Water. Sponge frequently with Water, and as the Fever commences to subside, give Quinine in the usual doses.

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## SMALL-POX—VARIOLA.

This disease is too well known to need a particular description. It is always caused, or communicated by contagion; that is, caught from others who have it. It is usually divided by medical writers into two kinds, the Discrete and the Confluent; but they are both the same disease, in different degrees of severity. The Discrete form is the milder, where the pustules or scabs are fewer, distinct from each other, and do not run together. On the other hand, it is said to be Confluent when the pustules, especially on the face, hands and arms, run together and form one continuous scab, and, of course, is much more virulent and dangerous.

When the virus or contagion has once been taken into the system, the disease cannot be prevented; but it may be greatly modified, both by

immediate Vaccination, and by a course of Diet and preparation of the system. It is, therefore, proper to understand premonitory symptoms. As soon as it is known that a person has been exposed to the disease, he should be vaccinated, even though he has been vaccinated before. Vaccination will often modify the disease, if done at any time before the appearance of the eruption on the surface. The patient should also be put on light diet, and the bowels should be thoroughly moved with Salts or Calomel, or both.

As a general thing, persons have the Small-pox but once. It is very contagious. Those who come in contact with, or are exposed to, this disease, if not previously vaccinated, will seldom escape. A few cases have been known of persons having the disease a second time.

Premonitory, or First Symptoms.—Small-pox commences first with chilly sensations, alternating with flashes of heat, and great pain in the small of the back; with pain in the head, soreness of the throat, dislike to motion, nausea, perhaps vomiting, thirst, and stupor. The disease approaches very much like an attack of Malaria, only, usually more severe. The fever becomes more continuous. On the third or fourth day the eruption appears on the face, neck, and breast, in small spots, like flea-bites, which increase for the next four or five days; during which time the eruption appears, more or less, over the whole body. It is always worse on the face. Sometimes the eyelids become so much swollen as to be entirely closed, producing complete blindness for the time. About the eighth day the process of suppuration, or formation of matter in the pustules, is complete. About the eleventh, the inflammation subsides, and the pustules begin to decline, dry up, finally scale off, and disappear about the fourteenth or fifteenth day. When the eruption first appears on the forehead it feels much like shot just under the skin. On the tenth day the top of the pustule sinks in, causing a characteristic appearance occasioned by umbilication; this takes place only in the eruption of Small-pox, and is characteristic of the disease.

Treatment.—I suppose that in most cases of Small-pox, a physician will be called. I have no doubt that there are many ladies in the country, as well as non-professional men, who can treat a case of Small-pox as well as half the physicians. It is a disease which requires mild treatment and simple remedies. In the first stage, before the appearance of the eruption, one may not be able to tell whether it is Small-pox or some other febrile disease; but the treatment should be about the same in either case. Bathe the feet well in warm Lye Water. If there is sickness at the stomach, there is nothing better to allay it, perhaps, than frequent sups of warm Spearmint or Peppermint Tea, with a little Saleratus dissolved in it. If the nausea and vomiting are sufficiently allayed, give a purgative.

The whole surface should be bathed with Cool Water two or three times a day, previous to the appearance of the eruption. It may be continued

once or twice a day after the eruption has appeared, until vesication or scabbing has taken place. Bathe and wash the body with Cool Water, if there is much fever and heat, notwithstanding the eruption. A little Saleratus, or common Salt, should always be added to the water; it helps to open the pores and keep the skin cleansed, by removing the oily, sebaceous matter from the surface.

If there is great pain in the head, bathe it with Cold Water, and give 5 to 10 grains of Antipyrine. The mouth should be washed with an Alkaline antiseptic.

As a common drink, to be used all the while previous to the full eruption, and to act gently on the skin, there is nothing better than plain Ice Water.

The bowels, of course, are to be kept open and in a lax condition; but no harsh or active purgative must be given. The best thing for this purpose is about two tablespoonfuls of Sweet Oil, to be taken every night at bed-time; or a tablespoonful of Sweet Oil and as much of Epsom Salts.

If the face swells much, and there is much suffering on this account, bathe it frequently with Warm Water, and keep well lubricated with Sweet Oil. To prevent the face and other parts from being *marked* by the pox, cover the parts with small pieces of silk, moistened with pure Sweet or Olive Oil, and keep the room as dark as possible. Exclude the light entirely, if you can, most of the time. Attend strictly to these directions and you may prevent pitting entirely, even in the worst of cases. It will also be necessary, sometimes, to tie or confine the patient's hands, or he may injure his face.

Pursue the foregoing course of treatment and you will succeed in nearly every case, I care not how bad it may be.

Stimulants, such as Alcohol, in the form of Brandy or Whiskey, and Strychnine, may be required.

Isolation to prevent others from catching the disease is necessary.

Regimen.—The patient should be kept cool, and as easy as possible. The diet, of course, should be light, such as Corn-Meal Gruel, Buttermilk and Water, Mush and Buttermilk, roasted Apples, Lemonade, Toast and Water, and the like. The room should be kept well cleansed and aired, the linen and bed-clothes changed often, and all noise and disturbance, as far as possible, prevented.

Varioloid.—This is a modified form of Small-pox, modified by the influence of Vaccination. It is generally mild, and without danger. It is to be treated the same as a case of genuine Small-pox, only that the treatment should be graduated according to the mildness or severity of the symptoms. Sometimes the disease is very mild, requiring scarcely any treatment; at other times it approaches very nearly to a genuine case of Small-pox, and requires a full course of treatment. It must be remembered that a person suffering with Varioloid may give genuine Small-pox to an unvaccinated person, if he should come in contact with such a person.

# VACCINATION.

The application of this valuable remedy requires care and judgment, and for want of these it has frequently failed. The first and most important point is to procure good Vaccine Matter; the next, to perform the operation properly, and the last, though not the least, that the child, at the time of Vaccinating, should be, as far as possible, in good health. The proper time for Vaccination is between the age of five weeks to four months, or before the commencement of Teething. If the bowels are out of order, or any eruption or breaking out is on the body of the infant, it is better to postpone until it is better, unless some necessity should indicate Vaccination, such as Small-pox being prevalent, or in the neighborhood.

It is, therefore, the duty of parents to protect their children from Small-pox, this dangerous and loathsome disease, by Vaccination. The preventive of this fatal disorder was introduced by the celebrated Dr. Jenner, who, by experiments, fully demonstrated that the virus of Cow-pox may be propagated from one human subject to another, through several gradations, and still retain the power of producing the affection regularly in all its stages, and of rendering those constitutions, which are infected, secure against the attacks of Small-pox. The inoculation with the Cow-pox, or Vaccination, through nearly a million of subjects successively, of whom many thousands were exposed to Small-pox without taking it, fully established the certainty of Vaccination by Cow-pox, as a preventive of this dangerous complaint, which, if it does not kill, is almost certain to disfigure.

We have had the opportunity of witnessing the efficiency of Vaccination. If any further proof is necessary to show the efficacy of Vaccination in preventing Small-pox, it may be found in the reports of our charitable institutions for the reception of children in the various cities throughout the United States. The Orphan Asylum, of Charleston, South Carolina, contained one hundred and fifty children; and not a single case of Small-pox or Varioloid occurred during the prevalence of that disease, although no additional restriction was imposed upon their intercourse with various families throughout the city

In the aggregate, the number of children received into the Orphan Asylum of Philadelphia, since its establishment, is three thousand nine hundred and fifty six. Among the whole there has been but four deaths from Small-pox, and these were found, on examination, to have no marks of Vaccination.

In the city of New York, the total number received in all the Orphan Asylums, is four thousand nine hundred and twenty-three; and although the Varioloid appeared in four or five of them, no deaths occurred from this

cause. A similar result is also obtained from the records of the House of Refuge, which exhibit an aggregate number of two thousand six hundred and fifty-seven children received during sixteen years. If to the above we add the number of children received into the New York Alms-house, Long Island Farms, we have a sum total, during the last thirty-six years, of twenty-four thousand two hundred and nineteen, with but ten deaths from Small-pox contagion. Although we cannot ascertain the entire results of Vaccination, yet we may form a very just estimate of the benefits, by comparing them with the ravages of Small-pox among children, before the introduction of the Kine-pox or Vaccination. But even admitting that Vaccination does not entirely prevent an attack of Small-pox, it nevertheless deprives it, in a great measure, of its terrors, and reduces the mortality, which once made it one of the greatest scourges of mankind, to comparatively a small amount, or not one in thousands. "For example," says that learned and distinguished physician, Dr. Valentine Mott, of New York, "during the prevalence of epidemic Small-pox and Varioloid, out of two hundred and forty-eight cases of Small-pox and Varioloid, one hundred and fifty-five were unprotected by Vaccination, of whom eighty-five died; sixty-four Vaccinated, of whom one died; nine Inoculated, of whom three died." Such facts establish fully the salutary influence of Vaccination, and should at once remove every doubt as to this invaluable remedy, which has proved so great a blessing to mankind.

The Vaccine matter to be employed must be good; therefore, great care is required in the application of none but pure, healthy matter for the success of this process. For want of this, it has frequently failed, which may be regarded as one among the main causes of the want of success in its operation. Sometimes, from some peculiar state of the constitution or health of the child, the Vaccine disease will not take. Experience has long proved that weakly, unhealthy constitutions will not, in every instance, take Vaccination; these are, however, fortunately, very rare instances. Should this be the case, after a number of trials with fresh matter, let the child be left for a few months, until a change of the system, or its general health is improved, and then give it another trial. There are some individuals so constituted, that they happily pass through life without being susceptible of any contagious disease.

Some parents object to Vaccination on the ground that it may introduce into the system some constitutional disease to which the person from whom the Vaccine virus, or matter, has been taken, is subject. This objection, we think, is well entitled to consideration; the danger should be carefully avoided. No prudent physician will run the risk of using matter taken from any person having scrofulous tendencies or diseases which affect the skin. Have your child vaccinated as early as circumstances will permit; it appears to be a very simple operation, but should only be undertaken by a skilled physician. Absolute cleanliness about the entire process is of the greatest

importance, not less than ten minutes should be consumed in thoroughly cleansing the physician's hands, and then the arm. If the Vaccine matter is taken immediately from the pustule, or the scab, or matter which is like cream, medically called *Pus*, it may be inserted in the flesh with a needle or pin. A little place may be scratched in the thick part of the outside of the arm, between the shoulder and the elbow, and the fresh matter rubbed in with the point of a pin or needle, or lancet. Another method is to lift the skin with the point of the lancet, and then insert the matter under the skin. When making this scratch or incision, be careful to draw no blood, as its mixing with the matter causes it frequently to lose its effect. The matter may always be taken from the pustule between the sixth and eighth day after Vaccination. After the eighth day the matter begins to lose its virtues, until a scab is formed, which appears to contain all the virtues of the freshest matter. The scab commonly comes off in about eighteen or twenty days. It can at any time be moistened with a little Warm Water, and made into a paste, of the consistence of cream, by putting it upon a piece of glass, and then with the point of a large needle, or lancet, inserted in the same way as before described, with the matter taken from the arm. After you insert the matter, be careful of the dress, so that it does not rub it off and let it have an opportunity of becoming dry; a large corn protector or special Vaccination shield should be placed over the point of inoculation, as a protective. Scratching the arm must be avoided, no matter how great the desire may be to do so. Nothing, not even the garment, should come in contact with the sore, from the time the Vaccination is performed until the arm is entirely well.

By far the best Vaccine virus, to-day, is prepared direct from the pustule on a healthy cow or calf. This virus is supplied by the large drug manufacturers in two convenient forms—in capillary tubes, a liquid, and on points, dry, each point being separately sealed in glass. Each tube or point has sufficient virus for one Vaccination, and should be used for one person only. This form of supplying the virus, reduces the danger of contamination with some other disease to a minimum. This is the only form which can be recommended.

Bad results from Vaccination are due to a lack of knowledge in performing the operation, or to carelessness afterwards, such as scratching.

Having thus endeavored to inculcate the practice of universal Vaccination, I believe I have offered all the remarks which are essential regarding this important subject.

Remedies.—Internal treatment in Vaccination is rarely required, except now and then a teaspoonful of Castor Oil, if the bowels are out of order, or there are feverish symptoms. The principal thing to be attended to is the arm, to protect the vesicle, or the sore, from injury, particularly from the sixth or seventh day. If from friction or any other cause, inflammation and swelling around the pustule should become severe, you may bathe it

with Cold Water. But it is better, at least with but few exceptions, to permit Vaccination to pursue its entire course undisturbed until it forms into a hard, round scab, of a dark mahogany color, which generally falls off from the fifteenth to the twentieth day, leaving a permanent circular mark on the skin, depressed, and marked with six or eight minute pits. When one is specially exposed to this disease, it will not be amiss to attempt re-vaccination every seven or eight years.

## CHICKEN-POX—VARICELLA.

Chicken-pox, sometimes also called Water-pox, is an eruptive disease, consisting of pimples scattered over the body, but appearing mostly over the back, shoulders, and arms. They are generally smooth, transparent or whitish, and flattened at the top. After a few days, they become yellowish or straw-colored. Sometimes the vesicles are sharp or pointed, and the fluid which they contain remains clear, like water, throughout the disease. The disease is almost exclusively confined to children, appears but once, and is seldom of much consequence, as there is but little febrile disturbance or other sickness attendant. About the third or fourth day the vesicles burst, exude a little thick fluid, and then concrete into puckered scabs, leaving but slight marks behind. The eruption does not usually appear all at the same time, but is often followed by one crop after another, for several days. The disease is contagious. It is sometimes difficult to distinguish Chicken-pox from Small-pox, when the latter is mild. The umbilication of the pustules in Small-pox, and the series of crops of pustules in Chicken-pox, aid in making the distinction.

Treatment.—All that is necessary is a few simple remedies and a little care. A mild laxative or gentle physic once or twice, sponging the surface of the body at night with warm Alkali or Saleratus Water to open the pores of the skin, and keep the patient warmly clad and free from exposure to cold, is all the treatment that is requisite in ninety-nine cases in a hundred. If there should be much fever, or the case should be bad, treat the same as Measles or a mild case of Small-pox.

## MEASLES.*

This disease is usually preceded, for a few days, by a dry cough, hoarseness, frequent sneezing, and watering of the eyes, with more or less fever, as if the child had taken a severe cold. At this time before the skin

*Scarlet Fever causes a similar eruption upon the skin to that which shows itself in Measles; for a treatise on that disease, see page 322.

eruption appears there always occur small red or blue tinted patches on the mucous membrane lining the mouth, especially the inside of the cheeks. This eruption occurs only in Measles, and always early before the skin eruption; it is termed Koplick's sign of Measles, because he first observed and described the eruption. An eruption or pimples then make their appearance upon the surface of the face and neck, and soon over the whole body. As the disease progresses, these pimples run together in patches of irregular shape, and feel rough. The fever often increases after the eruption has fully appeared; the eyes are inflamed, and headache becomes severe, as the fever is aggravated. About the fourth or fifth day the rash is fully out; it begins to leave the face on the eighth day; and in a very short time after is scarcely perceptible. When the eruption subsides, the skin is covered with a whitish powder similar to meal, and scales of it fall off from the surface of the body. When the Measles are mild, and regular in their progress, which is usually the case, and where careful attention has been paid to the child, this complaint requires only the mildest treatment and simplest remedies. But the consequences of Measles are often worse than the disease itself; they may be rendered severe, and even dangerous, by neglect or improper remedies, as the giving hot and stimulating drinks to drive out the eruption, or keeping the child in a hot room, covered with flannel and blankets during the fever and eruption; by this improper means of treatment, Inflammation of the Lungs is often produced, which is frequently fatal. Instead of this irrational application of external and internal heat, an opposite course should be pursued.

Remedies.—Very little medical treatment is required in mild cases of this disease. Cold drinks ought to be used, not only during the fever, but while the eruption lasts. Some cooling purgative may be given if necessary, and in mild cases no other treatment is required. In the latter stages of this disease, the occurrence of free purging often takes place, amounting to Diarrhœa; this is to be regarded as beneficial, and any interference with it by astringents or anodynes to stop it, may be the cause of doing serious injury, and even produce dangerous consequences. Therefore, a knowledge of this fact is of great importance, as it may be the means of saving the lives of many children who would otherwise be exposed to a great risk. The precautions necessary in Measles are to exclude light from the eyes, and protect the child from exposure to cold air, a current of which might cause a cold, which would result in Inflammation of the Kidneys or the Lungs. But Cold Water, one of Nature's best remedies, should never be denied the patient, under any circumstances, as indeed the craving thirst most plainly indicates, and to withhold it greatly increases the suffering and aggravates the disease.

Light food must be given. Whatever is necessary to sustain the patient should be of the simplest kind, and in a liquid form, with cooling mucilaginous drinks. Sponging or wetting with a cloth the face, chest, arms, and

hands, occasionally with warm water, to which add a little Salt, will greatly remove the heat, dryness, and itching of the skin, often very distressing at night.

If the pulse becomes very rapid and the fever high, the sponging may be repeated oftener and with cool or cold water instead of warm water, avoiding exposure to cold.

When the scales begin to drop off, it is well to rub the entire surface with good Olive Oil.

Those who, from exposure to the contagion, are liable to have this disease, should be warmly clad, and should avoid all undue exposure to cold and wet weather. The feet, in particular, should be kept warm and dry. We close this subject by saying, when properly managed, Measles cannot be considered as a dangerous disease, unless aggravated by the above causes, which, undoubtedly, predispose to dangerous inflammations of both kidneys and lungs.

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## MUMPS.

This disease consists of inflammation of the salivary (Parotid) glands, situated on either side of the lower jaw. It commences with more or less fever. Afterward a swelling at the angle of the jaw appears, and spreads gradually to the face and neck, in the vicinity of the gland, causing much difficulty and pain when the jaws are opened. On the fourth or fifth day, the swelling begins to subside. This disease most frequently occurs in childhood and early life. The tumors or bumps sometimes appear on both sides; at others, only on one. These swellings are movable, hard, sore, and very painful, and often of a large size; indeed they sometimes become so large as to produce a difficulty of swallowing and of breathing. Other glands of the body are sometimes affected by these swellings. In the male, the testicles are sometimes greatly enlarged and inflamed. In women, the breasts partake of the same kind of inflammation. Mumps is a disease quite devoid of danger, if the patient is not much exposed to cold or damp weather; unless, as has occasionally happened, though rarely, the inflammation becomes suddenly transferred to the testicles, or breast. When this is the case, these glands will sometimes suppurate or break, and cause considerable difficulty.

Remedies.— In most cases this disease is mild, requires only good nursing, and care that the body be kept warm and dry. Children should stay in the house, and be kept quiet, as violent exercise, or whatever stimulates the system in a high degree, may excite a disease of the testicles, or breast, or cause more or less fever.

In mild cases, very little treatment is required, if the child is kept warm. If the swellings are painful, give a dose of Paregoric. Keep Hot Lead

Water and Opium on the swollen glands. (A drachm of Tincture of Opium in an ounce of dilute Lead Water.) If the bowels are costive, give some gentle purgative. If a purgative is necessary, give a little Epsom Salts, or Castor Oil. Let the diet be light and simple. In violent cases, if the swelling appears in the testicles or breasts, Lead Water and Opium should be applied, and the testicles should be supported in a suspensory bandage. If the parts are very much swollen, Hot Poultices applied to the swelling will give relief; and if the pain and swelling are very severe, one or two Leeches may be applied to the swelled parts. In general, however, I have usually found the application of hot fomentations to afford speedy relief. The diet should be light and is necessarily liquid.

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## WHOOPING COUGH.

This complaint commences with hoarseness and sneezing, similar to a common Cold, redness of the face, and a watery discharge from the eyes and nostrils, with an unusual desire to sleep. After a longer or shorter continuance, a whooping sound is heard when the air enters the lungs during the coughing spell, and as this increases, an appearance of suffocation and vomiting, with which the paroxysm usually terminates. In an advanced stage of the disease, the child struggles for breath until relieved by a full inspiration, followed by the whoop. During the intervals the child appears as well as ever, but the frequency and severity of the Cough increases as the disease advances, which lasts, generally, for five or six weeks, when it gradually declines. In some cases, I have known the Coughing to last for five or ten minutes, and so violent as to exhaust the child, and compel it involuntarily to empty the bladder and bowels. The breath will often be lost for so long a time that the face, lips, and neck will turn purple, and the eyes will be swelled almost out of the head. The child will frequently take hold of something in order to support itself during the Convulsion or fit of Coughing. This fit of Coughing is very often cut short by Vomiting. There is usually brought up by every fit of Coughing, a load of tough, glairy phlegm, which, in young children, is swallowed into the stomach; and by those who are older, is expectorated. The act of Vomiting not only throws off the phlegm which has been swallowed, but greatly relaxes the windpipe and lungs, and promotes the secretion of the mucus.

In the early stage of this disease, or in mild cases, there is little or no fever, but in a severe attack of this complaint, and especially in children who have weak lungs, the fever is often violent, and not infrequently dangerous. Nevertheless, although mild cases require but very little treatment, severe forms of this disease, sometimes, by improper management or

want of care, result in Inflammation of the Lungs, Dropsy, Consumption, and Emphysema. Whooping-cough is epidemic, and, in different seasons of the year, is found to vary in severity. It follows the laws of other contagious diseases, and it is reasonable to assume that it is a germ-disease, though the germ has not as yet been discovered. A second attack is seldom known to occur.

When the skin is moist and warm, the appetite good, and the expectoration and vomiting free, the disease will commonly end favorably. The looser and the greater the quantity of phlegm discharged, the milder the disease will be. When this disease occurs in its mild and simple form in a healthy child, the termination is usually favorable.

THE TREATMENT of Whooping-cough is unsatisfactory, as far as drugs are concerned. The disease being contagious, the child should be isolated. Whooping-cough in itself is usually not dangerous; but Pneumonia is so common a complication, that too great care cannot be taken to avoid this. If the attacks of Coughing are often and severe, rest in bed is required. There should be plenty of fresh air, night and day. In the early stages, if the fever is high, the following alkaline Fever Mixture may be given: Solution of Ammonium Acetate, 2 ounces; 2 to 4 drops of Tincture of Aconite (amount depending upon the age). To this mixture add a sufficient amount of Anise Water or plain Water, to make a total of three ounces (about an ounce of water); of this give a teaspoonful every two or three hours. Some physicians recommend that a sixth of a grain of Extract of Belladonna be given to a child a year old, three times a day, until a red flushing of the skin occurs, which latter condition is a sign that poisoning will occur, if the drug is continued. Many other drugs have been recommended; but I think they are useless, if they do not do more harm than good. As I said before, medicines have little effect upon the course of Whooping-cough.

When the worst of the attack is over, and convalescence has begun, the greatest care must be taken of the child, for it is at this stage that the Pneumonias are contracted, and so often result fatally. Draughts must be avoided, also excessive heating; the child must not be exposed to wet or cold. Sometimes there remains a troublesome Cough, associated with general weakness. Such a patient should have a change of climate, if possible. Great care should be taken with the food, choosing such as is nutritious, readily digested, and palatable. Tonics, such as the following: Saccharated Carbonate of Iron, a drachm, and a fifth of a grain of Arsenious Acid, made into twelve pills or powders, taken, one three times a day, should be given in conjunction with Cod-liver Oil.

## INFLUENZA.

This disease is characterized by an increased secretion of mucus from the membranes of the nose, mouth, and bronchial tubes, attended with sneezing, cough, thirst, fever, and loss of appetite. There is a tendency to Pneumonia as a complication.

Causes.—It is generally epidemic, or endemic, prevailing throughout a certain district, and affecting usually a large proportion of the inhabitants; hence it is assumed that it is due to a germ, as are other contagious diseases; notwithstanding the fact that the Influenza germ has not been discovered as yet. When it appears in a mild form, it is not considered dangerous; but when it rages as an epidemic, with highly inflammatory symptoms, and is not attended to in time, unfavorable and sometimes fatal consequences may result.

Symptoms.—The disorder usually commences with sneezing, coughing, and chills, succeeded by heat, hoarseness, sore throat, followed with pain or soreness in the lungs and stomach. There will be increased expectoration of mucus, running at the nose, pain in the chest, back, shoulders, and head, especially in the forehead. The eyes become red and bloodshot, and there is general debility and weakness. Complications are serious as a rule, and the disease often leaves the patient in a much weakened condition.

Treatment.—The disease in every case must be considered serious. The patient should be confined in bed while there is fever. The bowels should be opened with Calomel or Salts. At night 10 grains of Dover's Powder should be given to an adult. Antipyrine in small doses may be used for the Headache. In case of weakness of the heart, Strychnine should be given. If there is much difficulty in expectorating, or in breathing, give occasionally a teaspoonful of Tinctures Lobelia, Blood Root, and Wine of Ipecac.

Convalescence should be watched carefully, avoiding exposure, and taking nutritious diet and tonics. Alcohol may be used throughout the course of the disease.

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## DIPHTHERIA.

This seems to be considered, both by the profession and the people generally, as a new or modern disease. This, however, is a great mistake. By a careful investigation into the medical records of the past, it will be found that this seemingly new disease existed as an epidemic in the city of Rome, A. D. 380; also, that it raged in Holland in 1337; in Spain in 1600; in Naples in 1509; and in New York in 1611, and again in 1771, and in most cases was extremely fatal. But having occurred only at periods so

remote from each other, and generally but for a short time, and not having occurred anywhere that we know of, especially in this country, for nearly a hundred years, it is not to be wondered at that it had been lost sight of by medical authors, and that it should now be considered very generally as a new disease. But whether new or old, is of but little consequence; the main thing is to know how to treat it, and especially how to cure it.

Symptoms.—Diphtheria is a peculiar kind of Sore Throat and Laryngitis, in which a false membrane is formed. It is most common among children, though grown persons are quite liable to it. The patient is most usually, perhaps, taken in the morning, and generally with sensations as of an attack of cold in the head, being somewhat drowsy, a weariness through the joints, and usually more or less soreness of the throat, difficulty of swallowing, and of turning the head. A peculiar symptom is a sort of uneasy sensation, or stinging pain, just inside the throat, opposite the angle of the jaw-bone and under the ear, as though there were some small object lodged there. Soon there will be considerable swelling and hardness of the glands of the throat; the face appears bloated or swollen; the eyes perhaps a little red, swollen, and moist. The inside of the throat, at this stage, will be found quite red, in children of a rose color, while in grown persons more purple or dark red; the uvula or palate becomes swollen and elongated, and there is generally a discharge of watery matter from the nose, but no sneezing or cough. Usually there is but little fever; but in some cases the disease is very sudden and alarming in its attacks, exciting the apprehension of the patient and friends, and may terminate fatally even in a few hours. In such cases the symptoms are all intense.

The next symptom that may be noticed is the appearance of a whitish spot, apparently somewhat swollen, back in the fauces or throat, perhaps several such spots; soon these spots will run together, and form what is called the diphtheritic membrane. These patches, somewhat like ulcers, though generally of a whiter appearance, may be located on the pharynx, the tonsils, or the uvula. As the disease progresses, the white, false membrane, extends more or less over the fauces, or back part of the mouth and throat, and swallowing becomes very difficult; the glands of the neck and under the jaw become more swollen; the tongue is pressed forward and upward, the saliva escapes from the mouth, and the breath of the patient is generally very offensive. Swallowing now, especially of solids, is very difficult, and dreaded by the patient. If he sleeps, he will often awake with convulsive coughing, caused by the saliva escaping into the windpipe instead of passing into the œsophagus or throat. This disease may be known from Quinsy by the manner in which the patient swallows—it being difficult to do so in both cases. In Quinsy, the patient usually shuts the eyes, leans the head forward, and swallows with a quick, spasmodic effort or jerk; while in Diphtheria, the face and chin are raised, the eyes stare wide open, and the act of swallowing is done as slow and easy as

possible, so as apparently to allow the substance to be swallowed to pass along the tongue slowly over the epiglottis to the œsophagus. The act of swallowing in Quinsy, as well as in ordinary Sore Throat, seems to cause severe pain; while in Diphtheria pain does not seem to be the cause of the difficulty.

Diphtheria may be easily known from Croup, from the fact that it is not attended with cough, while a peculiar sort of cough is one of the characteristics of Croup. In Diphtheria, the nose also seems to be stopped up, or discharges a watery, transparent fluid, which gives to the voice a sort of nasal character, not met with in Croup, Quinsy, or any other form of Sore Throat.

In the course of the disease, if it yields to treatment, or the constitutional strength of the patient, that is, as the patient grows better, this white membrane peels off in spots or in strips, and is discharged from the mouth along with the saliva; sometimes in quantities really astonishing. And it may be that after one pellicle has thus been thrown off, another, and even a third one may be formed, generally whiter and thinner than the first, and finally thrown off in the same way. After this diphtheric exudation or pellicle has been thrown off, the parts from which it has been removed will appear shriveled and greatly shrunken, as though a portion of the substance had been removed. Yet it will be found, on examination, that no abrasion of the surface, or ulceration, has taken place.

The disease is contagious and infectious; caused by a small bacillus which was discovered several years ago. The bacillus growing causes the membrane to form, which may become thick enough to obstruct breathing, which is one great danger in Diphtheria. As the bacillus grows and multiplies, a waste product is formed, called a Toxine, and this is absorbed by the blood of the patient, so that the entire system is poisoned. The heart is especially injured by the Toxine, and this is the second great danger in Diphtheria.

Treatment.—This is in many cases a very dangerous disease, yet it may be very successfully treated in almost every case, if taken in time. All active, harsh, or depleting measures should be avoided, as not only unnecessary, but actually injurious. Avoid, therefore, blood-letting, active purging, and emetics. Eat nothing but a little of the mildest kind of food, as Gruel, Porridge, Custard, soft-boiled Eggs, boiled Rice, and the like; remain quiet in a warm room, and drink no cold water. The air in the room should be kept moist by boiling water constantly. No one but mother or nurse and the doctor should come in contact with the patient. Quarantine should be strict. The throat should be swabbed, by means of cotton on a probe, with Peroxide of Hydrogen, Loeffler's solution, or some other local application. These applications should be made twice a day. For very young children warm compresses may be applied to the neck; for older children and adults, cold applications should be made to the neck.

Diphtheria Antitoxin is a specific in this disease, and should be given in a liberal dose as soon as the diagnosis is made. (For a full account of Antitoxin, see Section XIV.) This is given by a needle and syringe under the skin. It may be necessary to repeat the dose. Greatest care and cleanliness is required in administering Antitoxin. It has reduced the death rate of Diphtheria from 20 to 30 per cent to 2 to 4 per cent.

As convalescence commences, the child should be kept in bed and heart tonics should be given for two weeks after all symptoms have passed. There is great danger of Paralysis of the Heart for some time after recovery seems assured.

For a heart tonic, Strychnine in $\frac{1}{100}$ grain doses may be given to a child three times a day for many days—as long as the pulse is weak.

If the breathing is slightly interfered with, an emetic of Ipecac may give relief; if the breathing is very greatly obstructed it becomes necessary to put a tube in the larynx—this is termed intubation. It is a delicate operation, but saves many lives. If it is impossible to obtain some one to intubate, an opening through the neck into the wind-pipe should be made, through which the child may breath.

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## ST. ANTHONY'S FIRE—ERYSIPELAS

This disease is characterized by a shining red inflammation of the parts affected, accompanied with more or less swelling, and a distressing irritation, with a stinging, smarting, itching, burning sensation. The irritation is sometimes so great as to almost set the patient crazy. The temperature is usually high, with rapid pulse.

It is generally superficial; that is, affecting only the skin; and most usually attacks the face, ears, and head; sometimes only the feet, hands, and legs; at other times it may appear on the back, but may spread over most of the body. It occasionally becomes deep-seated, and is apt to suppurate and break; it is then called Phlegmonous Erysipelas.

In the progress of the disease, after a few days, especially where it is confined to the face and head, it is apt to form a number of little vesicles or blisters, containing a yellowish fluid, which will sometimes be thin and watery, and at other times tough and sticky, adhering to the parts. Sometimes, in severe cases, these vesicles will run together, forming a complete mass or scab; the face will be greatly swollen, the eyes perhaps closed, and the patient will suffer great pain in the head, with fever, thirst, restlessness, and perhaps delirium.

When it appears on other parts of the body, it is not apt to form blisters, but the burning and itching will sometimes be intense and excruciating. It will remain on the surface a few hours, perhaps, in red, burning spots, slightly raised or swollen, and then go in and disappear for awhile, often

rendering the patient very sick at the stomach; and then perhaps appear again, and so continue for several days. It is a very distressing complaint, and when it affects the face and head is often dangerous.

CAUSES.—It is caused by a germ which multiplies and forms long microscopic chains; an abrasion of the skin is necessary for it to start in, but such an abrasion need not be large enough to be visible to the eye. This is very much like the germs which cause Child-bed Fever. In some persons its attacks are periodical, coming on once or twice a year; and persons who have suffered from frost-bite are apt to be troubled with it in the frost-bitten parts, during the winter and spring seasons.

TREATMENT.—There is no doubt that the digestive apparatus is more or less deranged in this disease; and this derangement may be the exciting cause. It is always well, then, to commence the treatment with a cathartic. It will do good, beside cleansing the system, by rousing the organs of secretion and excrètion to a more healthy action. Calomel, followed by Salts, may be used.

If the attack seems likely to be very severe, the Vapor Bath should then be employed, and a thorough sweat produced.

The Vapor Bath, or steaming, is very important; where the eruption appears more or less over the body, and there is great heat, itching, and pain, it will generally give immediate relief.

Various washes have been recommended to be applied to the affected parts to cool down the inflammation. Among the best, as a cooling wash, is a solution of Borax and Sugar of Lead; this often is very good. Mix 2 drachms of each in 1 pint of rain-water, or a drachm of Tincture of Opium to an ounce of dilute Lead Water. These washes, of course, are to be used before vesication or blistering takes place.

An Ice Bag or Ice Water applications should be kept constantly over the inflamed surface.

An ointment composed of a drachm of Ichthyocol to an ounce of Ointment of Zinc Oxide, or plain Petrolatum, may be applied to the entire inflamed surface.

Applications of a solution of Bichloride of Mercury, in the strength of one part in five thousand of water may be tried (keeping it out of the eyes). If suppuration takes place, the abscess should be opened and the Bichloride of Mercury used as above.

If the temperature becomes very high, cold Sponge Baths may be given. Stimulants may be required. The diet should be restricted to liquids.

In Traumatic Erysipelas (which arises from wounds, by appearing on their edges and spreading thence over the surface) treat with applications of Bichloride of Mercury as described above.

In Phlegmonous, or deep-seated Erysipelas, which generally appears about the thighs and hips, rely on Bichloride of Mercury applications and purgatives.

# CHOLERA.

Nothing fills the public mind with more alarm and apprehension than this fatally malignant epidemic. The faint-hearted and the stout-hearted seem equally appalled. The Cholera! what sickening, terrible associations are connected with the very words! We remember the appearance of the epidemic in this country in 1832, and the panic and alarm that seized all classes of society. This dreadful scourge, which the Almighty has employed to destroy so many millions of the human family, should warn us, "Be ye also ready." There are seasons in the history of nations and individuals, when the cup of their iniquity is full, and when the Supreme Ruler of the Universe can no longer mitigate or defer His anger. The pestilence is emphatically His own messenger. It was so in various epochs of the Jewish history, and has been so ever since. Has He not visited His favored people with these afflictions? and shall we expect to be exempt from them, and thus be debarred from advancement in holiness? God is not wanting in means and instruments to accomplish the purposes of His indignation. All secondary causes are in His hands, and He employs them to accomplish His designs of judgment, as well as mercy. Sometimes He selects men and makes use of them as the rod of His anger. See how many millions have been swept into eternity by wars and by ambitious rulers. Sometimes He selects for His purpose the material creation; the sun, moon and stars, the earth, the ocean, and the elements, all conspire as His ministers of rebuke. Fire and hail, snow and vapor, stormy winds and tempestuous billows, fulfill His word. Often He withholds the rain of heaven, and takes away the fruits of the earth. Sometimes He sends the earthquake and the lightning, but most generally the awful messenger, the Pestilence. These things are calculated to teach solemn lessons, to still every passion, and elevate our souls to the contemplation of "that High and Holy One that inhabiteth eternity," existing in infinite majesty, living in the eternity of His own nature, reigning in the plenitude of His own omnipotence, forever sending forth the word which creates, supports, and governs all things.

This dreadful pestilence, like the Plague, made its first appearance in the East, and no reasonable doubt can be entertained that the disease is of Asiatic birth. In the year 1762 it prevailed extensively in Hindostan, destroying 30,000 natives. On the river Ganges, 8,000 of the pilgrims died in eight days of this disease; their great exposure to night air, and fatigue, was probably one of the predisposing causes of this great mortality, as this complaint did not extend to the adja-

cent towns Cholera, however, continued to make its appearance occasionally in India, in a mild or more severe form, from 1762 up to the beginning of the epidemic of 1817. This mysterious disease was uncertain in its course, having no regular forms by which its location could be certainly determined, save that of its selection or preference for water courses. In Jessore, a district of British India, on the 19th of August, 1817, the Cholera made its appearance in a small town situated in the delta of the Ganges, near the Tropic of Cancer, one hundred and twenty-nine miles north-east of Calcutta. This country contains many marshes, and its appearance is very similar to that which surrounds Savannah, in the State of Georgia; the soil is very fertile, producing large quantities of rice. At the period of the appearance of this epidemic, the rainy season had commenced, and the rice becoming damaged, the inhabitants of that country, who use this article of food instead of bread, supposed that the Cholera originated from this cause, as their discharges by stool resembled rice water, which is now well known to be the case in this disease. From the town of Jessore, the Cholera took a westward direction, destroying thousands in its march, until it reached Mymensing, a district watered by the Brahmapootra, where it prevailed two years, destroying 10,714 persons. It then visited Dacca, a district between and near the confluence of the Ganges and Brahmapootra, and from a document preserved in that city, in sixteen months, 6,355 were attacked with the disease, and 3,587 died. In the town of Sylhat, containing 20,000 inhabitants, 10,000 died. In the district of Nuddea, traversed by that branch of the Ganges called Hoogly, with a population of 1,300,000, the Cholera destroyed 16,500. At Nuetore, the disease was much less severe, owing to its being situated in a more healthy, dry atmosphere. In the country places, however, particularly in damp, moist, and low situations, the fourth of the sick generally died. In Bargulpore, only a short distance of fifteen miles, 15,580 died in sixty-five days; here the country was low and marshy, and filled with stagnant ponds. The epidemic then visited Benares, destroying 25,000 persons. In September, 1817, it visited the city of Calcutta, which is the seat of government of the British Indies. In three months and a half 35,736 inhabitants of the city and suburbs were attacked by the Cholera, and of these 2,750 died. It is estimated that 50,000 Hindoos died of this horrible disease, many supplicating for relief to their great Idol, Juggernaut, until death put an end to their sufferings. The ravages of the disease continued in this city during the succeeding year, and extended over the entire province of Bengal. It spread in a northwest direction, following the course of the Ganges, and finally reached the Himalaya mountains Here its progress seemed for a time arrested,

and as I have before said, giving a preference to water courses, it now passed from the Ganges to the Nerbuddah river, and following that stream to the coast of the Arabian sea, it reached Bombay on the 4th of November, 1818. Here it destroyed upward of 200,000 persons. It now traversed the whole of Hindostan.

It likewise spread southward to the Coromandel coast, and the islands of Ceylon and Malacca, extending its course to the 20th deg. of south latitude. Passing through Siam, it visited China, scourged Canton and Pekin, then entered the eastern coast of Africa, at Zanguebar. In 1818 it spread north, south and westward; in the summer of 1821 it reached the shores of the Persian Gulf, passed up the Tigris and Euphrates, and entered the city of Bagdad on the 18th of April of the same year. The city and the surrounding country suffered severely. During six months, 65,826 died of this disease. From Bagdad it crossed the desert to Aleppo, and by the report of the French Consuls, I have been enabled, from their official documents, to collect the following facts: The Imaum, or sovereign, informed them that 10,000 of his subjects had fallen by this disorder, and that in consequence of the people having exhausted their means of burying the dead, provision was made from the Imperial Treasury; hundreds of dead bodies being frequently exposed for weeks for want of the means of burial, and thousands died from fear, many in the most excruciating torture, without a friend to soothe or wipe from their brow the cold, clammy sweat of death. It now entered Astrakhan, a Russian town with about 45,000 inhabitants, situated on the Caspian sea, at the mouth of the Volga. At this period it seemed to have ceased its fearful ravages in these countries, but continued its fearful and desolating havoc in India and Chinese Tartary, destroying 70,000 persons.

After an absence of six years, it suddenly made its appearance again in the year 1829, in Orenburg, a Russian town of 20,000 inhabitants, situated on the Ural river, and 3,000 died in sixty days. It now made a second visit to Astrakhan, at the mouth of the Volga. It also spread through Circassia, ascended the Volga, and reached Moscow in September, 1830, and St. Petersburg in 1831. Passing along the coast of the Baltic sea, it visited Berlin and the principal towns of Prussia, and reached Hamburg in October, 1831.

This disease, for the first time, visited England in October, 1831, at a seaport town at the mouth of the river Weare, called Sunderland, and made its appearance in London on the 2d of March, 1832, and reached Edinburgh, in Scotland, about the same time. Calais was the first place visited in France. The visit took place on the 2d of April 1832, and in a few days after the disease appeared in Paris. On the

8th day of June, 1832, the first case of Cholera appeared at Quebec, in Canada, and a few days after at Montreal.

On the 24th of June, 1832, the Cholera made its first appearance in the United States at New York. On the 5th of July it visited Philadelphia, and on the 9th of October, the same year, the Board of Health announced its appearance in Cincinnati; and about the same time cases occurred in Louisville, Kentucky; Madison, Indiana; and at St. Louis, Missouri. By the 1st of September, following, it reached New Orleans, and then visited Mexico, and the island of Cuba; and leaving these countries resumed its ravages in Europe. New York and New Orleans, the latter city particularly, suffered severely from this disease.

On the 21st of October, 1848, the Cholera again made its appearance in England, and about the same time in the city of Edinburgh, in Scotland.

In the years 1849 and 1850, this disease was again very destructive in the United States. In Cincinnati the deaths numbered as high as 180 per day in the latter part of June, 1849.

The comma bacillus, discovered by the famous Prof. Koch, and proven by him to be the undoubted cause of Cholera, is an extremely minute bacillus shaped like the punctuation mark, the comma. This organism can live for indefinite periods of time in water, and it is by drinking infected water that the disease is usually contracted. Boiling the water before drinking it will aid materially in preventing Cholera. The disease is not very contagious but its infectiousness is undoubted.

Still we have, after all, conclusive evidence to show that sensible changes and extremes of atmospheric states, are powerfully contributing causes of Cholera. In India, it was clearly proved that the disease was more or less prone to occur in individuals, in proportion to their greater or less exposure to nocturnal cold and damps; to great and sudden variations of temperature, and to fatigue. The Medical Board of Moscow, appointed to investigate the nature of the disease, reported "that the intensity of the Cholera was in direct ratio *to the dampness of the atmosphere*," the epidemic chiefly prevailing among the lower classes, who resided in moist and low situations. In Bengal, the physicians attributed the occurrence of Cholera to the sudden changes of weather—strikingly unseasonable—humid soil, and a damp atmosphere. In 1832, the town of Dumfermline, in Scotland, was affected with Cholera from the 3d of September until the 23d of October; at that date, every street, lane, and alley, was fumigated with Chlorine Gas; within five days the pestilence was entirely gone. This was afterward done in several other towns with equal effect. It was ascertained, beyond a doubt, that every house in the infected district, in which Chlorine Gas was used as a disinfecting agent in the Cholera of 1832, enjoyed absolute immunity from the disease. Care, however, should be taken in using it, as the Gas, in a pure state, must not be inhaled into the lungs, as it is destructive of animal life. In all other epidemics it is

equally good. In the city of Edinburgh it was used with great success, and in several other towns with equal effect. If this fact is fully established, this frightful disease will lose half its terrors.

In proportion as civilization and refinement, moral culture and protection against physical ills, make progress among a people, their chances of exemption from pestilential diseases increase. The period in the history of Europe the most fertile in calamities, was between the years 1040 and 1496, and is marked by thirty-two destructive plagues, their common interval being twelve years. But in the Fourteenth Century, the age when disorder and distress had obtained their greatest height, Europe had been wasted by fourteen fatal and almost universal Plagues. In the two next succeeding centuries, governments began to reassume their vigor, and removed to a greater distance the scourge of tyranny in governors, no less than that of slavish submission in the people. In the Seventeenth Century, the Plague became still lest frequent, until at length it entirely disappeared from civilized and Christian Europe. The general correctness of this view seems to be strikingly confirmed in the history of Cholera. Beginning in India, it spread nearly over all middle and southern Asia, carrying off in a few years millions of human beings, most of them miserable, servile, and ignorant, who are debarred either the moral or physical energy to shun the disease, or the ability to bear up under its assaults. Resigning themselves with slavish fear to a death which they conceived inevitable, they neither asked nor allowed of the administration of means of relief. In India the mortality was just in the ratio of the lowness of the scale of the inhabitants in society; servants and common laborers in the towns, and camp-followers in the army, being the greatest victims; the native soldier next; while the Europeans and their officers enjoyed greater immunity from the disease. Those in the civil employ of the East India Company, and merchants, English and native, were sufferers in but a comparatively trifling degree. In China, the disease selected its victims from among such of the people as lived in filth and intemperance. Russia, with so many of her inhabitants, until recently slaves of the soil, and her soldiers mere creatures of the most degraded slavery—debased in mind and morals—for the most part ill-fed and ill-clothed, and often covered with vermin—knowing little other excitement than that of drunkenness—next numbers her myriads of victims to the Cholera. With the progress of the disease westward to civilized Europe, we find its diffusion to be less, and its mortality in smaller proportion, to the population; Poland suffered less than Russia; Austria less than Poland; and Prussia less than Austria.

The nature of the differences between the liabilities of nations to be attacked by Cholera, is still further confirmed by what we have learned respecting the comparative sufferings of the different classes of society. Dr. McCormick, speaking of the Cholera as it appeared at Tabriz, says that the disease began in that part of the city which is most low, filthy, and

crowded with poor inhabitants; the disease advancing from quarter to quarter of it, finishing its ravages in the houses which were low, and in the parts most inhabited. The ill-clothed and filthy, the intemperate and those given to any excess, have constituted the greatest number of victims to Cholera in all countries; while, on the other hand, the temperate and prudent most generally escaped, or suffered but a slight attack. To this fact, nearly all the physicians who have had an opportunity of studying the disease bear testimony. In the Russian soldiers, whose habits are filthy, and whose skin was, in many instances, covered with dirt of more than a line in thickness, the disease in general terminated fatally. A distinguished physician of Moscow, in his report, states that drunkenness, debauchery, bad food, and personal indiscretions, were incontestably predisposing causes. Dr. Rieche informs us that, in China, the disease selected its victims from among such of the people as live in filth and intemperance. Dr. Darbel, a French physician residing at Moscow, thinks that this atmosphere is dangerous to those only who are predisposed to this disease from debauchery, indigestion, drunkenness, and to persons subject to bowel complaints, or suffering from cold or exposure. A physician of Warsaw states in his report to the government that the disease spared all those who led regular lives, and resided in healthy situations; whereas, those whose constitutions had been broken down by excess and dissipation, were invariably attacked. Out of one hundred individuals destroyed by Cholera, it was proved that ninety had been addicted to the free use of spirituous liquors. The agency of intemperance in predisposing to, and exciting the disease, is shown by the fact, that after the decline of the epidemic at Riga, the occurrence of the Whitsuntide holidays caused a temporary augmentation of new cases, from the indulgence in intemperance and a material change in the ordinary modes of living, as all irregularities predispose to this disease, particularly the indulging in spirituous liquors; or whatever tends to lower the standard of health, favors the attack of the disease.

Causes.—The terrors which the Cholera spreads before its pestiferous path, have always been trebled by the mystery which was involved in its origin and character. Like most other diseases—the Small-pox, the Yellow Fever, and the Scarlet Fever—its fatality lessens as it becomes better understood, and the means of counteracting and preventing it are more scientifically applied. Even the origin of this fatal epidemic is now pretty conclusively explained. It belongs to that type of disease which could never have begun except in a tropical climate, but which, having once sprung into existence beneath the equator, is capable of being disseminated in colder latitudes, by extending gradually through the atmosphere, as the venom of a rattlesnake spreads itself from a central point over the entire system. It is well known that conditions of the atmosphere are necessary for the propagation of the germ, *i. e.*, a certain amount of heat and mois-

ture. This quality, however, is latent, or but imperfectly developed, until it meets with a constitution adapted to receive it. To create an epidemic, therefore, two things are needed—the germ, and a body liable to its influence. Without the germ there can be no Cholera.

Poisoning the atmosphere wherever it went, it yet did not smite all, for all were not equally liable. But when it found a constitution adapted to it, the virus entered the system at once, and the victim, unless speedy aid was afforded, died in a day. Neither cleanliness, robust habits, nor ease of mind, were certain protection against this fell disease; for it smote the millionaire as well as the beggar, the sturdy laborer as well as the valetudinarian. But a comfortable home, nourishing food, good spirits, and an avoidance of all excess, were found, on the average, to render the body less liable to be affected by the poison; hence, when the Cholera reappeared, it was discovered to have lost apparently a portion of its virulence, and was seen to confine itself to certain districts and to attack particular constitutions. Though still a terrible disease, it is now less dreaded than formerly. Every year medical science strips it of some of its terrors.

We must live in the hope, before this scourge again visits us, which it probably will do, that, by our former experience, we have more effectual methods of cure to offer than we had when this disease made its first appearance in the United States.

Symptoms.—This disease generally commences with a change of countenance, expressive of great anxiety, sickness at the stomach, colicky or griping pain, discharges from the bowels, slight cramps, and oppressed pulse. After a few hours' sickness the eyes look sunk in the head, the body becomes cold, the pulse quick, but scarcely perceptible to the touch; then perhaps violent cramps seize the muscles, especially the legs and belly; the skin and nails become of a purple color, and the skin is cold; the evacuations from the stomach and bowels, instead of being of a bilious color, resemble rice water. There is not vomiting in every case. In most instances, a Diarrhea or Bowel Complaint is the commencement of the disease, and the patient complains of coldness and cramps, with frequent discharges from the bowels. Though the skin is very cold, the rectal temperature is 103° to 105°. Thirst is intense. This collapsed stage lasts for from eight to twenty-four hours; death or reaction follows; in the latter case, the skin becomes warmer, the blueness disappears, the pulse becomes stronger and slower. Relapse, a typhoid condition, or recovery, may now succeed. Relapse is usually fatal. The typhoid state may terminate in death or slow convalescence.

Treatment.—Drugs are of little value. Morphine should be injected before the stage of collapse; even then it should be used very cautiously. Normal Salt Solution should be injected into the bowel to wash it out; such a solution should also be injected into the subcutaneous tissues until

the pulse becomes strong and full. The convalescence should be managed with careful nursing and dieting.

I now come to the great thirst. That is owing to an exhausted state of the system; the same is seen in persons bleeding to death; they call for wa ter; and hunters tell us that deer and other animals, when wounded, run for water. Large quantities of water are passed in the stools, and plenty of water must be taken to make up for this loss.

I shall now give you my treatment of this disease, when the epidemic prevailed in its most frightful and destructive form—Cholera is to be cured by producing and keeping up a free secretion from the liver, and its discharge from the bowels—which was a full dose of Calomel, in a tablespoonful of Brandy, to which was added a little Sugar. The moment the stools begin to change to a normal appearance, your patient will begin to recover. The dose I generally gave was a small teaspoonful, though I never took time to weigh it; and, if necessary, in an hour or two afterward, half this quantity was given. In not one case did it produce salivation.

I applied Mustard Poultices to the legs and feet. If there was vomiting, I applied large Mustard Plasters over the stomach and bowels, and had the body well rubbed with Brandy or Whiskey, into which I put a spoonful of Cayenne or Red Pepper, a gill of Spirits of Camphor, and a teaspoonful of Laudanum. This, by good friction, produced by rubbing the body briskly with the palm of the hands, in a short time relieved the Cramps, and restored the natural warmth to the skin. Cover up well. As great thirst exists at this time, give the patient Ice, or Cold Water, or cold Lemonade, if it does not cause vomiting, or give him small pieces of Ice to eat. This quiets the stomach, and stops the vomiting.

[The use of Calomel in the treatment of this disease, as in all others, is of very doubtful utility, and is condemned by a large number of our physicians, at the present day. During the summer of 1849, when the disease prevailed as an epidemic, Dr. J. H. Jordan, an Eclectic physician, had charge of the Cincinnati Cholera Hospital from the 6th of June until it was closed on the 16th of August, and, as is well known, was remarkably successful in treating the disease. He used no Calomel, but relied mainly upon stimulants and external heat.]

We lay it down as a general rule that the usual diet of a family, enjoying uniform good health, should not be materially altered because of Cholera alarms. The simple fact that a manifest change is made in the daily food, is calculated to awaken fears, suspicions, and do harm. Articles known to be indigestible, or to offend the stomach and bowels, must be laid aside.

All should avoid excessive fatigue, and excesses of every kind. Exposure to bad weather, hot or wet, or to damp nights, will exert an unfavorable influence. If the slightest manifestation of uneasiness pervade the stomach or bowels, let none forget that neglect may prove fatal.

Care in respect to clothing is very important as a means of preventing Cholera attacks. Those who wear flannel would do well to persist in its use without intermission, or at least throughout the season of Cholera; and those who are not accustomed to it, will find much advantage in a soft flannel bandage applied moderately tight to the abdomen.

## BUBONIC PLAGUE.

Bubonic Plague, also known as the "Black Death," is an Oriental disease, which occasionally is carried to Europe and sometimes to this country. It is contagious and develops in two to five days after exposure. It does not make progress in districts where good sanitary conditions prevail, and hence filthy people are usually the ones attacked. In this country it is usually the filthy, lower classes of Chinese who succumb to the disease.

The disease is caused by a definite germ, which falling upon suitable soil produces the disease. It may be inhaled into the lungs, taken with the food, or gain admission through an abrasion of the skin.

The disease commences with almost unbearable headache, and severe pain in the back and limbs. Temperature rises, and there is early delirium. The lymphatic glands enlarge, especially those in the groin, from which fact, being *buboes*, the disease gets its name.

There is not much to do for sufferers, who usually succumb in from six to eight days. Cold spongings and stimulants, with free incisions into the buboes, is about the limit of the treatment.

Patients should be isolated and the discharges burned, and the greatest care used in preventing the spread of the disease.

## LEPROSY.

This disease, so often mentioned in the Bible, is fortunately rare, though somewhat on the increase. It is a chronic *infectious* disease, caused by a known bacillus. There are a number of cases in this country, especially at the various seaport cities.

There are two forms of the disease, one in which nodules form on the skin, the other affects the nerves, producing numbness; ultimately the two forms run together. Ulceration of the skin occurs and deformities gradually result; sometimes there is great loss of substance, or loss of fingers and toes, producing tremendous mutilation.

These unfortunate people usually live in colonies and care for one another. Drugs have no effect upon the course of the disease which ultimately proves fatal.

# HYDROPHOBIA.

This is a disease of dogs, which may be communicated to man. The name comes from the fact that dogs suffering from this disease were supposed to fear water, which is not a fact; the dog, in reality, is extremely thirsty, but, because of the disease, is unable to swallow, hence his strange actions in the presence of water. Other animals than dogs, have the disease; as the cat, rabbit, etc.

If a person is bitten by a mad dog, and is susceptible, and does not take care of the wound, any time from two weeks to three months after being bitten, he may develop symptoms of Hydrophobia.

The disease is undoubtedly caused by a germ, but it has not yet been discovered. The famous Pasteur studied the disease and succeeded in making a preparation which prevented people from having Hydrophobia, if they took the preparation before being bitten. His experiments upon himself and his enthusiastic followers, though interesting, are too extensive to describe here. No cure for Hydrophobia, once developed, has come from the Pasteur Institute, or any other place. The disease is usually fatal.

It commences with a numb feeling about the seat of the injury. There is sleeplessness, and a sense of impending danger. Soon the act of swallowing is interfered with. Spasms occur, and they result from the slightest cause, as a sound, a draught of air, a ray of light. There is some fever. Finally, the patient's sufferings are gradually reduced, and he sinks into a profound sleep or coma, from which he cannot be aroused. The pulse becomes slower and weaker, and finally stops. The end usually comes within forty-eight hours.

Treatment.—Preventative treatment consists in muzzling all dogs during the summer months at least, if not all the year.

The wound of a person bitten by a mad dog should be thoroughly cleansed with Soap and Water, after which it should be well cauterized with Caustic Potash or Concentrated Carbolic Acid. The wound should not be allowed to close for five or six weeks. A moist Bichloride dressing should be kept on it all the time. (See Surgical Section.)

Of course it should be ascertained, beyond a doubt, that the animal has Hydrophobia, before shooting it; for many people have been bitten by dogs which were not suffering from Hydrophobia, yet have passed through all the worry and torturing treatment, which is only necessary in case of true Hydrophobia.

When once the disease develops, Morphine and Chloroform should be freely used.

## LOCK-JAW—TETANUS.

This is a dangerous affection, and consists in a contraction of a part or the whole of the muscles of the body; but more especially the muscles of the jaws.

Causes.—It is almost invariably caused by wounds or injuries of the tendonous portions of the body, though sometimes it will arise from any wound, especially in warm climates, and occasionally from other causes. Punctured wounds, that is, such as are made with a pointed instrument, as a nail, are the most likely to induce Lock-jaw. Wounds in the bottom of the feet, or palms of the hands, where the tendons are most numerous, are the most liable to bring it on. Piercing the foot with a nail, by treading on it, is very apt to result in Lock-jaw. Any wound that injures a tendon may induce the disease. The real cause is a little germ, called the *Tetanus Bacillus*. This bacillus lives in the soil, and in dirt and rust. If introduced into a wound, as on a rusty nail, it multiplies and grows, at the same time throwing off poisons which, within two weeks after the injury, produce the symptoms of Lock-jaw.

Symptoms.—Lock-jaw sometimes makes its attack suddenly, very soon after the injury; but more usually comes on gradually, beginning with a slight stiffness in the back part of the neck, which increases, rendering it difficult and painful to move the head. Next there will be pain and stiffness at the root of the tongue, rendering it difficult to swallow; tightness across the chest, and pain in the diaphragm, or just above the pit of the stomach, shooting through to the back. Next a stiffness is felt in the muscles of the jaws, and they soon become locked, so that it may be impossible to open the mouth. There may or may not be contractions and stiffness in the limbs and other parts of the body. Convulsions occur at intervals.

Treatment.—1st. As to preventing its occurrence. No wound, where we have reason to believe the tendons have been injured, especially in the bottom of the foot or palm of the hand, should be allowed to heal on the surface before the bottom heals; particularly if it has been made by a nail or other dirty instrument. If it is, it will be almost sure to induce Tetanus. Such wounds should be immediately laid open with a clean, sharp instrument, and treated as any punctured wound should be (see Punctured Wounds). Do not use a Poultice.

If in two weeks after the injury, or perhaps sooner or later, the patient experiences difficulty in swallowing, and stiffness in the muscles about the jaw and neck, Anti-tetanic Serum (much like Anti-diphtheritic Serum—Antitoxin) should be procured and injected at once, according to directions on the containers. Morphine, Chloroform, and Bromides should be freely

used to control the spasms and pain. The diet should be light and nutritious, and is necessarily liquid.

Carbolic Acid is sometimes injected when the serum cannot be obtained, and is often valuable. The bowels must be kept well opened.

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## TUBERCULOSIS.

TUBERCULOSIS is one of the most widely-spread and common diseases man is subject to. The disease has many names, depending upon the part of the body it is located in. When in the lungs it is known as CONSUMPTION; in the hip joint as *Coxitis;* in the lymph glands, especially of the neck, as *Tubercular Adenitis* (formerly as SCROFULA); in the spine as *Pott's Disease*, etc.

The disease is caused by a germ, known as the *Tubercle Bacillus*, and discovered by the famous Prof. Koch. This organism is capable of living for long periods of time dried up in dust. It can withstand considerable variations of temperature, and, all together, it is quite "hardy." It gains admission to the body through the lungs, by being inhaled with dust. It is admitted through the mouth into the tonsils, or through the mouth into the stomach and intestines. It may be carried by the blood to various parts of the body, where it lodges, grows, and multiplies. First an inflammatory hardening occurs, then the inside of the hardened spot begins to soften and finally becomes "cheesy." This material breaks down and becomes semi-liquid, and like pus, and in the lungs constitutes the material expectorated in Consumption. This material contains large numbers of the Bacilli, which when thrown off from a body may get into food or drink of other people, or it may dry up and form a part of the dust in the air we breathe. They, *i. e.*, the Bacilli, may also be thrown off in the urine, the stools, and the discharges from Tuberculous sores. It is evident how important it is, that the expectorated matter and excretions of persons suffering from Tuberculosis should be carefully collected and destroyed by burning, to prevent others from catching this dreadful disease, which is so rapidly increasing.

Cattle are dangerous disseminators of Tuberculosis; it is not an uncommon disease among them, and rare beef, from a Tuberculous steer, or milk, from a Tuberculous cow, are dangerous articles of diet, especially for people of an inherited Tuberculous tendency. Undoubtedly these are common sources of Tubercular infection.

Tuberculosis is probably never inherited, as a disease in itself, but the conditions of the body (we do not know just what these are) which are favorable for the growth and development of the germ, are inherited and passed down from generation to generation; this is especially true if both

parents are of families with Tuberculous tendencies. Some of the children of such parents may have Consumption, others Pott's Disease, another may have hip-joint disease, etc., all expressions of the implantation of the Tubercle Bacillus in suitable soil, but in different parts of the body.

Undoubtedly, some *Tubercle Bacilli* are more vigorous, more active, than others; perhaps this explains why if such an active Bacillus should fall upon favorable soil, there results what is termed by the people Quick Consumption, or by the doctors Acute Tuberculosis.

Everyone takes into his system a greater or less number of *Tubercle Bacilli* during their lives; the Bacillus, however, only produces Tuberculosis in those whose tissues supply the conditions necessary for its development.

CONSUMPTION.—Tuberculosis of the Lungs usually follows Pneumonia, Pleurisy, or an attack of Influenza; instead of completely recovering from these diseases, the patient continues to cough, the temperature rises in the evening, there is continual, but gradual loss of weight, and the appetite is poor. A competent physician, at this time, can by a careful examination of the chest, say pretty positively whether Tuberculosis is commencing or not. If it is, there is great hopes of cure, provided immediate change to a high, dry country is made, and proper treatment adopted.

Later the characteristic red spots make their appearance on the cheeks; there is almost constant fever; large quantities of material are expectorated from time to time, associated with coughing attacks; more or less severe hemorrhages from the lungs occur; the appetite is poor; there may be a troublesome diarrhœa; night sweats cause more or less discomfort; the finger-nails become clubbed, the eyes are bright, and emaciation becomes very marked. There is one strange feature, the patient is usually hopeful to the end. Death often comes gradually and without pain; sometimes it results from one tremendous hemorrhage.

The disease may run a course much like Typhoid Fever and terminate in death rapidly.

People may entirely recover from fully developed Tuberculosis with proper care and treatment.

POTT'S DISEASE OF THE SPINE is Tuberculosis of the bones of the back. It is a chronic disease, crippling and deforming the patient, sometimes causing running sores and cold abscesses, which often open in the groin. The disease may cease, leaving deformity, or general Tuberculosis, or Consumption may terminate the existence.

TUBERCULAR PERITONITIS causes an almost uncontrolable diarrhœa, with slight temperature, especially in the evening; the patient gradually assumes the appearance of one suffering from Tuberculosis in other parts.

TREATMENT OF TUBERCULOSIS.—Commencing Tuberculosis of any part of the body can be cured in any individual who is otherwise fairly healthy.

Three things are essential to produce such a cure: a high, dry country, best secured in the mountains of New York, or Colorado, or in New Mexico; an out-of-door life in the fresh air, and a nutritious diet; an appetite for such a diet being stimulated by the fresh air and appropriate tonics.

Surgical Tuberculosis in addition to the above treatment requires absolute rest. By Surgical Tuberculosis, I mean Tuberculous disease of the bones, joints, or skin. Plaster casts and like appliances are used in such cases.

The medicinal treatment of Tuberculosis, in whatever part of the body it may be, consists in the administration of Creosote, or some preparation made from it, Cod-liver Oil, and some form of Iron; Alcoholic stimulants are also valuable. Three drops or more of Creosote may be given three times a day; 5 to 10 drops of the Syrup of the Iodide of Iron may be given three times a day; Alcohol may be given in the form of Whiskey or Brandy with the Creosote.

The diet should consist in all forms of nutritious food, beef, eggs, milk, vegetables, and almost anything of the substantial foods desired may be used. Pastry and Sweets should be used sparingly.

When the patient is in the advanced stages of the disease, home is the best place. He should be made as comfortable as possible, Morphine being freely used whenever it is necessary.

Bathing and keeping the skin active is necessary in all stages of the disease. Flannel, *i. e.*, woolen clothing, should be worn next to the skin during the greater part of the time.

The Night Sweats can usually be controlled by Atropine in hundredth of a grain doses. Hemorrhages should be controlled by Morphine and the local use of Ice and cold applications.

Tubercular Adenitis—Scrofula.—The name Scrofula is derived from *Scrofa*, a hog, because it has been observed in swine. It is called the King's Evil, because Edward the Confessor, and other kings of England and France, pretended to cure it by the touch. The last that practiced this delusion was Queen Anne; in the year 1707, she issued a proclamation in the London papers, inviting her scrofulous subjects to the royal touch. This disease chiefly affects the glands, particularly those of the neck, and consists of small hard kernels under the skin of the neck, and under the jaw, where they remain for a long time, often gathering and breaking, and discharging matter. Many persons have scrofulous constitutions or temperaments, which they inherit from some one of their progenitors.

As to the causes of Scrofula, there can be no doubt that hereditary predisposition is the cause above all others. That a predisposition arises in children from their fathers having had this disease, is undoubted. In children, the glands (those of the neck, chest, and belly) are the most usual seat of scrofulous disease. In adults, or grown persons, the Lungs most generally suffer. Of nearly nine thousand scrofulous children examined in the various hospitals in England, over thirty-two per cent had light hair

and eyes. The skin is dry and hard, and of a greasy exhalation; and has a fetid and sour smell.

TREATMENT.—Bathing in Salt Water is among the best remedies in this disease, and drinking Salt Water so as to keep the bowels gently open. Iodine has been highly recommended in France, Germany, and England, for the numerous cases which it has cured of Scrofula.

One of the most important and useful remedies in this disease, is to keep the skin clean; and the sea air is, beyond all doubt, very beneficial in restoring the system to a state of health. All sores heal better in sea air than in any other; and it is a well-known fact that children, who play and run in the open fields, where they breath the pure air, preserve their health and prevent disease. Exercise gives strength to the flesh, hardness to the bone, and energy to all the fibers. Inactivity produces despondency in the mind, invites disease, and produces feebleness of the body.

A valuable outward application has lately been discovered for dispersing the Scrofulous Tumors, or swellings of the glands or joints, by rubbing the part gently with it, or by applying flannel moistened with it over the part. It is composed of the following ingredients: Take of Iodine, 20 grains; rectified Oil of Amber, 4 drachms; rectified Spirits, 2 ounces; mix. On adding the rectified Oil of Amber to the Iodine, a combustion or flame takes place, and when this is finished, the Spirits should be added.

The usual treatment of Tuberculosis should be followed out, in addition to which the nodules may be removed by surgical operation; or in case pus forms in them they should be opened and dressed with Iodoform.

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## GLANDERS—FARCY.

GLANDERS is an infectious disease of horses, occasionally transmitted to man. The disease is characterized, in the horse, by the formation of lumps; if in the nose, the disease is called Glanders, if beneath the skin, Farcy.

Men become inoculated with the disease by contact with diseased horses, usually through abrasions of the skin, or by getting the contagious material on the mucous membrane of the nose.

In man, Acute and Chronic Glanders, and Acute and Chronic Farcy, are recognized. In the acute form of this disease, abscesses form, there is high fever, and all the appearances of blood poisoning; there may also be an eruption much resembling that of Small-pox; death usually results in from ten to twelve days; in rare cases recovery occurs. The chronic form of the disease is difficult to recognize; there may be all the symptoms of a long-standing cold, with enlargement of the glands of the neck. Tumors may form under the skin, especially of the extremities; these later break

down and form abscesses, which may, before recovery, result in deep ulcers, sometimes extending down into the muscles. Death may finally result from blood-poisoning. Recoveries are more common in Chronic Glanders than in the acute form.

It must be remembered that the disease is transmissible from person to person, so that all who come in contact with a person suffering with Glanders should be very careful, and be sure that they have no abrasions of the skin.

Little can be done for one infected with Glanders; if the wound is noticed early enough it should be cauterized or cut out, and an antiseptic dressing should be applied. All abscesses should be opened early. Make the patient as comfortable as possible; rest in bed is essential.

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## PROGNOSIS OF FEVERS.

Prognosis of Fevers is the opinion formed (with regard to the outcome) of any particular disease, either favorable or unfavorable. Now, if the reader will be attentive, he may be instructed in the art of foretelling what may happen to the patient, with respect to the termination or change of the disease, either by death or recovery. This knowledge is very important to one who has never read medicine as a profession, or had experience in practice.

The prognosis of an impending disease may be drawn from the appearance of the countenance, the mode of living, the changes in habit or situation, and the critical period of life. If you should see a person who has been apparently healthy, become sallow, weak, with loss of appetite and spirits, restless and uneasy, with a disturbed sleep, you may reasonably conclude that some disease threatens. Should these appearances be gradually disclosed, with a countenance tinged lightly with yellow, it is probable that obstruction in the liver has taken place; if more rapidly, with slight shiverings occasionally, a Fever threatens; a regular Fever of an evening, at a certain time, gradually increasing, with cough, suggests the possibility of Tuberculosis. Violent fixed pains in the head, recurring at irregular intervals, and usually excited by every cause of increased circulation, generally show that some fixed obstruction prevents the free course of the blood through the organ, followed by convulsions or fits, sometimes by insanity, and frequently by a sudden termination of life, as in Apoplexy.

A fullness in the stomach and belly, are certain signs of accumulation, and it depends on the comparison of the other symptoms, whether it be obstructions of the viscera, which means the internal organs of the body, or accumulated contents, or merely flatulence, or wind; the prognosis must be

regulated by comparing the symptoms of each disease. The mode of life often leads us to form some prognosis of an impending disorder.

Late hours cannot be borne with impunity, except by very few, and their principal effect is to induce obstructions in the abdominal viscera. If connected with drinking spirituous liquors, the effect is usually felt on the liver. The sedentary student is subject to biliary accumulations, with costiveness, and a train of hypochondriac symptoms. Excess in eating or drinking will equally lead us to foretell diseases of the stomach, often of the head, connected with the stomach; but retributive justice is frequently seen to punish those who eat to excess, or more than the stomach can bear, by loss of appetite. Almost every situation is apparently consistent with health, if free and pure air be admitted, with temperance and exercise; but the want of a proper attention to these leads to a variety of diseases, such as Debility, Consumption, etc., which can easily be foreseen and avoided by a change. Changes of habits and situations are frequently the sources of different diseases, which we can often prognosticate, and sometimes guard against. Abstemiousness suddenly adopted after free living, and the contrary, are sources of disease—the former chiefly of complaints arising from insufficient stimulus, the latter from too great excitement. A sedentary, after an active life, is often attended with languor or weakness, low spirits, and visceral accumulations; the contrary, at first with languor or fatigue, soon followed by increased tone and vigor.

The critical periods of life require strict attention in forming our opinions of various diseases. If Tuberculous affections do not yield in the early period of life, there is little prospect of a cure. The same may be said of Epileptic Fits and of St. Vitus' Dance. The critical period of female life, is that of the stoppage of the usual monthly flow or menstruation, known as the menopause.

In forming our opinion as to diseases, our best information is to be derived from the state of the circulation and the respiration, usually known by physicians as the vital, animal, or natural actions, and prognosis is usually drawn from them, which we will endeavor to explain.

The vital action is chiefly known by the pulse. The pulse consists in the reciprocal contraction and dilation of the heart and arteries, by the former of which the blood is propelled through every part of the body, therefore great attention is necessary in feeling the pulse, as it often misleads, unless you accustom yourself to examination, and this is not difficult to do, if you will pay attention to the directions I lay down. Now, in judging of its strength or weakness, it is important to consider the sex, temperament, and age of the patient. In women, the pulse is quicker than in men; in the sanguine, than in the melancholic temperament; in youth, than in age.

The infant's pulse, during the first year of its life, is from one hundred and eight to one hundred and twenty; during the second year, it ranges

from ninety to one hundred and eight; the third year, from ninety to one hundred. From this time to the seventh year, it varies very little, when it falls to about seventy-five; and the eighth year, it scarcely exceeds seventy. From disease, and numerous other causes, the pulse is subject to great alternations. After a full meal, or taking any stimulus, the pulse is quickened; or after exercise or any agitation, it is also quicker. When you are standing, it is quicker than when you are sitting, and when you are sitting, it is quicker than when you are lying down.

The pulse in hysterical patients beats with great rapidity, but without any danger arising from it.

A fat person has naturally a weak pulse, because it beats to a great disadvantage beneath a layer of fat. When this is the case, you must make allowances. In a thin person this error can seldom arise, for we can feel distinctly the pulsation. A natural pulse is from sixty to eighty, or more strictly from sixty-five to seventy-five. On feeling the pulse, the arteries should be first felt gently, and if any doubt arise whether the pulse is weak, compress the artery strongly with three fingers, then slowly raise the two uppermost fingers; if the pulse be strong, and seemingly weak only from compression, the blood rapidly returning will strike fully the finger below; but if it be really weak, it slowly recovers its former force.

A throbbing pulse which strikes the finger with apparent, but not real firmness, will sometimes be mistaken for what is styled the hard pulse. But this has not the same firm resistance which we have described. It strikes sharply but not strongly, and the relaxation is as rapid as the pulse is transitory. It often so nearly resembles the strong pulse as to deceive. A small pulse will also be mistaken for a weak one, unless you have experience, or attend strictly to this matter. The lightness of its strokes depends on the small size, sometimes the depth of the artery. If a pulse be at fifty-five or fifty, there is reason to fear some compression of the brain. A constant pulse of ninety in a minute, rising occasionally to one hundred and eight, is characteristic of some people and means nothing.

If, in the early stages of Fever, it rises to one hundred and twenty in one, not peculiarly irritable, it portends considerable danger, either from debility or irritation.

If, at any stage, it exceed one hundred and twenty, or considerably exceed it, except for a short time, we have the greatest foundation for apprehension.

An intermitting pulse is a mark of considerable debility, and indicates, as a rule, a dangerous disease. It is also a symptom of organic affections. This alarming view of the subject requires, however, some alleviation.

An intermitting pulse is frequently owing to fullness of the stomach and bowels, and often arises from agitation of mind. It is also habitual, a circumstance not uncommon. In such constitutions, the usual intermissions,

on the access of Fever, often disappear; and the first symptom of amendment is the return of the intermission, which, at the end of the long Fever, may appear alarming, if not connected with other favorable symptoms.

In general, the favorable signs are pulses more soft, somewhat fuller, and in a slight degree more slow. The unfavorable signs are, more thready pulses, as if the artery were smaller, pulsations quick, weak, and irregular. The state of the circulation is also known by the complexion. A sallowness, and a want of transparency, show that the blood is not carried to the extreme vessels; and even when the cheeks are flushed, if the skin around the lips and nose be of an opaque, sallow whiteness, the conclusion will be the same, that the strength of the constitution is considerably impaired. The appearances of the eyes are equally indicative of strength and weakness, and the character of the features is preserved in proportion to the remaining strength.

Each appearance depends on the state of the circulation. Respiration, is a vital action, connected with the state of the circulation, and of the greatest importance in judging disease. Normally an adult breathes sixteen times a minute, an infant twenty-four times. Breathing slow, full, and deep, shows the strength and all the vital organs to be unimpaired, and in every situation is highly favorable. The weak, slight, and insufficient breathings, are, in general, a mark of weakness; the suffocating shows obstructions, the quick breathing, lack of lung surface.

The stertorous, or noisy breathing, resembling snoring, shows insensibility, from compression on the brain; the stridulous, which means a creaking sound in the breathing, inflammation of the wind-pipe, with a rattling accumulation of phlegm, attends the last efforts of expiring life.

Violent delirium is a symptom of active inflammation or irritation in the brain, and is dangerous, and shows a violent acute disorder. The wandering delirium, in fevers of a low kind, is a symptom of no great danger, unless it comes on early in the stage of the Fever. In all other complaints, it is dangerous, and shows that the inequality of excitement depends on debility, or weakness. If it continues after the Fever has ceased, unless it is evidently in consequence of debility, then you have good reason to suspect some organic injury in the brain, and more so, if a violent delirium occurred in the forepart of the complaint. Delirium arising from want of sleep is thought not to be dangerous, but the want of sleep, however, is most generally owing to a congestion of the brain. General restlessness is a symptom of the same kind.

Of the external senses and their organs, the eye affords the most particular symptoms by which the event may be foretold. When the patient picks the bed-clothes, or thinks he sees black spots, it is a sign of great debility, and is produced by an anæmia in the retina, which is the inner coat of the eye. This is a very dangerous symptom, but not a desperate one, as I have seen patients recover when this symptom was present.

A more dangerous symptom is double vision, generally an early symptom of Hydrocephalus. If the eyelids fall, and the patient can scarcely raise them by the exertion of the will, it is a great sign of weakness, and if the patient sleeps with half-closed eyelids, it is a sign of great insensibility. This is produced by an irregular contraction of the muscles of the eyes, for the pupil is drawn up under the lid. This is often a serious symptom.

When the eye is clear and natural in its appearance, it is a favorable symptom; but great brilliancy, or quick, rapid motions of the eye, is a sign of approaching delirium. This is likewise produced, or generally so, when the patient has a fixed, severe look, as when he has his eye fastened on some particular object.

When there is a blackness in the lower lid, toward the inner corner of the eye, it points out a weak state of the system. On the attack of Fevers, great weakness, to such a degree as to produce fainting, is always a very dangerous symptom, and, if accompanied with a wandering of the mind, the danger is greater.

If a patient's sleep is calm and refreshing, it is always a favorable symptom; but if the sleep is disturbed, and the patient starts, talks in a hurried manner, is startled as if by some dreadful images in his sleep, though not conscious of terror, it is unfavorable.

Deep sleep is itself a disease, and generally shows a considerable oppression of the brain; yet at the period of a crisis, by which is meant a favorable or unfavorable turn of a Fever, should this deep sleep be attended with a soft pulse, moderately slow, and a soft, moist skin, it is favorable. After a turn of the Fever, a deep, long, and continued sleep is not dangerous, provided it is not attended with a sound like snoring, or with a pulse unnatural, and so low as to be scarcely felt. In Fever the appetite is at once destroyed, and in a severe disease, it is not favorable that it should remain, or return too soon.

The tongue is important as a sign. Whiteness of its surface is a sign of Fever; when white and dry, it shows the Fever to be more considerable. As the Fever progresses it becomes brown, a darker brown, and even a black; and these colors are usually seen when the tongue is dry and hard. While the edges continue clean, and of their natural, speckled appearance, there is very little danger. Indeed, Fevers have terminated favorably in my practice, in hundreds of instances, where the tongue has been for many days dark, dry, brown, and even black. The tongue, in old people, and those of weakly constitutions, is often black at the back part, and is therefore somewhat deceptive.

A thickly-coated tongue indicates constipation, and ordinarily a cathartic or enema should be used.

A bright red tongue indicates, as a rule, lack of acid in the stomach.

The tip of the tongue and edges are bright red, with little elevations in

Typhoid Fever. In Scarlet Fever the tongue is rough and red, and because of a fancied resemblance to a strawberry is called a strawberry tongue.

A load or weight at the stomach arises from indigestible food, or an accumulation of viscid mucus, or a want of energy in the organ. When the irritability of the stomach is exhausted or worn out by excessive stimuli, as in the case of drunkards, or those who have used spirituous liquors to excess, the effect is a heavy load. Vomiting is the connecting symptom between the affections of the digestive and the secretory organs. If vomiting is violent and constant, without previous accumulation of bile, it may be considered an unfavorable symptom, generally caused from irritation of the brain, and when from bile it is distressing. Constant Diarrhœa is dangerous, showing debility. Another sign is the perspiration or sweat. Cold, clammy sweats arise from a total relaxation of the system, and are in general the evident signs of death.

The doctor should examine the urine of every patient at least once; an unsuspected inflammation of the kidneys may thereby be discovered in time to hope to cure it.

Sediments in urine seldom mean much, but "Quacks" make much of such a condition. It should be analyzed chemically to determine what it is composed of. Any good doctor can do this.

In Bilious Fever the urine is sometimes of a green, or of a dark color, which is due to the presence of bile. A mucus, like the white of an egg, is an indication of disease of the bladder, and is a frequent symptom of Gravel and Calculus.

The nature of the stools is of considerable importance, and they should be examined frequently with attention. The stool in Typhoid Fever is said to resemble pea soup; in Yellow Fever, rice water; in an attack of Gall-Stone Colic, clay. During an attack of Gall-Stones the stools should be washed in a sieve to find if any gall stones are passed. When the stools, in the beginning, smell offensively, it has been considered by some an unfavorable symptom; but if the discharge be free and copious, it is rather favorable. Calomel will, through the whole course of a Fever, often bring off such motions, because it acts powerfully on the biliary secretions.

I consider the situation of a patient a dangerous one, if the natural appearance of the face is lost; if the eyes apparently glare on vacancy; when the patient's answers are rambling and difficult to understand; a pinching up or contraction of the features, or face; trembling of the tongue when put out, looking dark and very dry; lies on his back; refuses to turn on his side; sinking down on his bed; extremities cold; occasionally starting or jerking of the nerves; picking or removing any dark spots on the bed-clothes, or wishing some dark object to be taken away; these symptoms are a sign of great debility and weakness, and the earlier they take place in Fever, the greater will be the danger.

Very favorable symptoms, and signs of a favorable termination of the disease, are these: The countenance is unchanged, and the expression natural; the mind is steady and undisturbed; the sleep, though short and interrupted, is refreshing, and the patient tells you that he is sensible of having slept; when the tongue is clean at the edges, the abdomen not distended or hard and painful on pressure with the fingers, the patient lying on either side, and awaking from sleep without any hurry or confusion.

In all cases where Fevers have been properly managed, in the early period of the disease, there are few instances in which a favorable change does not take place on the tenth or fourteenth day. From these remarks, and these signs of disease, which I have given, you will, by strict observation at the bedside of your patient, be able, to some extent, to form a favorable or unfavorable opinion as to the termination of the disease, noticing attentively the degrees of debility and other attending circumstances, such as constitution, habits, age, and the severity of the attack.

# SECTION VII.

## NERVOUS DISEASES.

### NERVOUS AFFECTIONS.

#### PRELIMINARY REMARKS—CAUSES OF NERVOUS DISEASES.

How many of the sufferings which annoy the human family, especially those of a nervous nature, might be avoided, if we would only refrain from the violation of the Laws of Health, by not indulging the appetites and passions! Scarcely any subject is more unwelcome, especially to those who prefer to indulge their appetites and risk the injuries likely to result, rather than bridle their passions and retain their health. Such often insult their Maker by attributing their sufferings to Providence, rather than to their own folly or imprudence, in the violation of His laws, to which are affixed penalties that cannot be evaded. As to our accountability, no one will deny it. Many, however, seem to think that they have a right to violate the laws of Nature with impunity, and treat their own bodies as they like, forgetting that God will hold them responsible for every infringement, and that they will meet with its legitimate and appropriate retribution. The brain is the seat and origin of all the nervous forces; it is made up of bundles of nerves; it is the seat of mental action; its organic formation is affected by the action and growth of the different characteristics of the mind. The nerves, proceeding as they do from the brain, carry out its influences and commands into all the functions of the animal economy. From it go out various branches of nerves, to transmit, like so many telegraphic wires, the nervous energy which is inseparably connected with the vital action of every part of the body. All the organs of the brain subserve important purposes, while their action is kept within the limits originally intended for them by their Creator. The nerves generally run in pairs from the brain and spinal cord to all parts of the body. A pair of nerves is contained in one cord. One of this pair is the medium of sensation, and the other of motive power. The one communicates feeling to and from the brain and all other parts of the body; the other gives the power and the command of motion of every part of the muscular system. These nerves are the means by which every part of the body, in regard to its sensations and motions, holds intercourse with every other part. They form the medium through which the brain receives intelligence from other parts, and governs and controls all the organs of voluntary motion; and, to use the comparison, are the telegraphic wires from the brain, which is the telegraph office from which the dispatches are continually sent, during the active hours of life, on matters pertaining to motion and sensation, to all parts of the system. Frequently, from some injury or other cause, the

nerves cease to transmit their electric fluid furnished from the great galvanic battery, the brain; then the brain, or the will, through the brain, ceases to command and control motion, and sensation is thus destroyed. We frequently find the arm or leg in what is called a sleep. This is caused by a stoppage of the circulating nerve energy in its course, by pressure on the nerve of the part. This pressure being removed, the nerve energy flows on, and sensation and power of motion gradually return.

Sensation and voluntary motion are not only dependent on a right electric circulation, but also those functions which involve involuntary action. Digestion in the stomach, and the pulsation of the heart, are carried on by nerve forces. Cut the nerve communicating with the stomach, and digestion ceases; apply an electric battery, and digestion progresses again. The circulation of blood through the heart and arteries, is, doubtless, kept up by the attractive and repulsive forces of nerve-energy currents. All the forces of Nature in the circulating system, are greatly dependent on this nervous agency. For instance, the wounds or sores of palsied limbs are much slower and more difficult in healing than other parts. No vital function can be properly carried on, without a right performance of the nervous forces. The similarity of the nervous system and nerve energy to an electrical system and electric energy is great, yet the two must not be confounded for they are not entirely the same.

From a knowledge of these facts, which is evident to every reflective mind, great pains should be taken by every man and woman to preserve the nervous system in a perfectly healthy state, by controlling those habits or vicious practices which decrease or diminish not only the physical functions, but the mental forces also; for the nervous system is the connecting medium of sympathy between mind and matter. Hence the injurious effects of using stimulants and narcotics on the nerves.

The great injury done to the nervous forces by the use of such agents as Coffee, Tea, Opium, the habitual use of Spirituous Liquors, and last, though not least, Tobacco, which latter is a far greater injury to the nervous system than is generally supposed, is more permanent and irretrievable than can be possibly imagined; yet their influences are so deceptive to their lovers, that very few have fully understood their destructive power. The exhilarating force, felt on taking them, blinds the mind to the reacting influence which must inevitably follow. How many have gradually stepped forward and onward in this path, which has conducted millions to ruin; whose sensual appetites and passions have weakened and vitiated their mental as well as their physical system, to a degree of imbecility which, sooner or later, has ended in the most fearful consequences, Delirium Tremens! Think, then, of the unmeasured woes of the drunkard's family, and the hereditary taint which a drunken father or mother bestows as an inheritance upon their children.

That children inherit from their parents a tendency to particular diseases and traits of character, can scarcely be denied. Nothing, indeed, is more

common than to see the exemplification of this almost generally received opinion. Indeed, the peculiarities which distinguish individuals are no less conspicuous in their constitutions than in their countenances. In the same manner, we can not doubt that these hidden peculiarities are as often transmitted from parents to their offspring as the more obvious ones connected with external form and features of the face. Will any one of common reflection say this is a matter of fancy, and not of fact? The truth is, there are individual instances everywhere, but comparatively few realize it. In every instance where either of the parents' habits are contrary to physical laws, they are doing an injury which will be more or less felt in the generations to follow them. How many parents, by indulgence in intemperate appetites and sensual dispositions, inevitably place upon their offspring the grossness of their own physical and moral deformities, making themselves responsible for the evil conduct of their children, who thus, perhaps, bring their gray hairs in sorrow to the grave!

Intermarriages between certain degrees of consanguinity or relationship, particularly among the wealthy aristocracies of all countries, whose members are generally indolent epicureans, are a frequent cause of diseased nerves. Imbecility and idiocy are too frequently bestowed on successive generations by these injudicious and unnatural alliances. The entailment of disease by hereditary descent is a most formidable evil, which throws obstacles in the way of recovery that can never be entirely removed, and are inseparable from the temperament in which they exist. Medical aid may, indeed, render them less formidable; but they are intrenched within the fortress of Nature, secured and guarded by morbid associations which have existed from the foundation of the embryo, are coevil with the dawn of infantile existence, and will be eradicated only in the grave. If two individuals, of weak frame and excitable nervous systems, injudiciously wedded, behold in the attenuated forms and pallid countenances of their offspring the seeds of diseases to which death would be preferable, and will inevitably be the termination, as Tuberculosis, Insanity, Melancholy, or Nervous Diseases of some sort, let them not blame Nature, but themselves, for the inauspicious consequences which have been entailed on their diseased progeny.

The command given to the great Hebrew lawgiver, not to permit his people to marry within certain degrees of consanguinity or relationship, was and is in strict accordance with the laws of our being. The wisdom of the prohibition has been confirmed by the experience of countless generations.

If the reader could be informed of the various cases that have come under my notice of Nervous Diseases, from the causes I have given, he would not be at all surprised at the variety of nervous paroxysms that afflict the human family; which may be diminished or increased by excitements, or disease, in proportion to the sensitive or morbid nervous character of the patient.

The deadly poison, Tobacco, is working greater physical devastation to this generation than can possibly be imagined, and may be called the twin sister of Alcohol. This low, vulgar, and unnatural habit that is enervating the vital and moral energies of the constitution, will affect posterity. It is one among the great causes of Nervous Diseases, as it diminishes the natural energy of the brain and nerves, and is productive of the most serious consequences to those who indulge in it, even slightly. Tobacco is one of the most deadly narcotics found upon the list of poisons. A very few drops of its condensed properties will destroy life. Indeed, a single drop of nicotine will kill the stoutest dog. If any doubt can be indulged in regard to its power, let any one who has never used it, chew a small piece, and the genuine effect of the article will soon manifest itself; though the habitual use of it stupefies the nervous susceptibilities, yet the real power of the article is daily absorbed into the system, and is doing by degrees, perhaps by imperceptible progress, its deadly work, prostrating the whole nervous system, and is destructive to the right quality of that principle which becomes the origin of life.

People are apt to think that because a certain habit, such as using Alcoholic Drinks or Tobacco, etc.,— which they, perhaps, in theory admit to be bad,— does not immediately destroy life, or make them invalids, they are receiving no harm, and are under no obligation to change their course. They judge of their obligations to physical law, as they do of their obligations to moral law; that because judgment against an evil-doer is not executed speedily, they may sin on with impunity. But punishment for violated physical law will sooner or later come. If those who offend could bear the rod alone, their crime against Nature's government would seem to be of less consequence. But when we know that the innocent offspring must bear a share in the punishment due to their parents, their offense seems to swell to a tenfold magnitude. Among those who act without reflection, the wide distinction between prevention and cure has not been generally recognized. They are apt to think that all diseases must be cured by drugs; but this is not the fact. Broken constitutions and premature death are generally the effects of the violation of laws of Nature, produced by false appetites and ruinous indulgences. They forget the old proverb, "An ounce of prevention is worth more than a pound of cure."

Unless the original cause of any given disease be removed, there is no successful way of obtaining a permanent cure. On the removal of the original cause, perhaps in more than nine cases out of ten, Nature will remove the difficulty without the aid of any kind of medicine; for it is the most consummate quackery to prescribe medicine to cure a disease, while the cause that produced it is not abandoned. Take, for instance, a lady with prostrated nervous system, which arises from a variety of complaints: Dyspepsia, in its various forms and its hundreds of attending sufferings; Sick Headaches and Nervous Headaches, with their periodical visits; diseases of the Stomach and Palpitation of the Heart; and innumerable

other disorders which have grown out of the long-continued use of stimulating drinks. Those dear, sweet luxuries of Coffee and Teas, especially the Green Teas, by their intoxicating power upon the nerves, have gradually and imperceptibly worn out their healthy tone; they are now in a morbid and irritable state, laying a broad foundation for ill-health in a variety of forms. How is it possible, then, for a cure to be expected, and still continue the luxuries of Coffee and Tea, and perhaps other stimulants! But if we will only assist Nature in removing the morbid condition produced by these exciting causes; or, in other words, cease rebelling against Nature, and put away these weapons of warfare, and desist from destroying her vital forces, by letting her have her own way, she will put forth her very best efforts to set every thing right, in nine cases out of ten; curing many diseases, especially those of chronic form, when the primary cause is removed. Nature will perform the cure better without medicines than with their use; for in thousands of instances they do harm instead of good.

The truth is, all medical agents, except those of the most simple kind, are at war with the laws of healthy life. If we would place more confidence in the curative powers of Nature, and give more attention to the laws which govern health, than to the constant use of drugs, we would succeed in removing many complaints, which, to say the least, drugging will frequently not do.

It is impossible to form a correct estimate of the injury and vast disturbance, in their effects on the system, of those various stimulants which are used to spur up the jaded nerves, or quicken the mind that is drooping under the reaction of a former excitement. An unnatural animal passion seems to predominate over better judgment, reason, conscience, and all the higher powers of Nature. Health, with all its attendant blessings on the soul, is worth something, they admit; but their gratified brutal passion is valued more. In view of these facts, great pains should be taken by those who care for health, to preserve the nervous system in a perfectly healthy state.

The speed of action in the heart and arteries varies according to age, exertion, and excitement. The number of pulsations per minute, in the unborn child, varies from 135 to 175; after birth, from 100 to 120; in adult persons, from 70 to 75. As age advances, pulsation grows slower. At the age of 60 to 70 years, it becomes reduced to 60, or a pulsation every second. The pulse of females is quicker than that of men. Motion and exertion increase the number of the pulse. Standing up, instead of lying down, increases it. Mental excitement greatly accelerates its motion. Stimulants which produce a morbid excitement of the nervous system, increase the action of the heart and arteries. A draught of Coffee, a quid of Tobacco, a Cigar, or a drink of Liquor, will increase the pulse. A single Cigar, by the nervous energy it excites, will add from fifteen to twenty beats per minute in one not accustomed to the use of Tobacco. These stimulants produce a diseased action and excitement of the heart and

arteries, thus promoting an increased rapidity of the pulse. It is calculated that the blood of an ordinary man will weigh about thirty-five pounds, and that the whole blood passes through the entire circulation in about two and a half minutes.

Obedience to the Laws of Health should be made a matter of individual and personal duty. It is, therefore, every individual's duty to study the laws of his being, and to conform to them. Ignorance, or inattention on this subject, is sin; and the injurious consequences of such a course make out a case of gradual suicide.

Another vile and vicious habit, which destroys the nervous strength and ruins the constitution, is Self-indulgence, called Masturbation. This secret sin is doing a great amount of injury to the human race. It often begins early in life, and continues by habit till its work of destruction has so enfeebled the reproductive power as to render marriage inexpedient and even improper. (See the article on "Solitary Vice and Self-abuse.") Excessive sexual indulgence also impairs the nervous system.

Mental health also is essential to a healthy state of the nervous system, as great mental exertion and application tend greatly to destroy a proper balance of the brain, as well as to injure or transmit a morbid influence, or, in other words, lower the standard of nervous strength.

The sympathy existing between the mind and the body is so great, that when one is affected, both are affected. Persons devoted to mental labor, merchants, counting-room clerks, or those of similar occupations, who are confined, require daily exercise in order to preserve a balance of muscular and nervous energy. By attention to this important matter, a short space, each day, of relaxation and exercise might save many a broken constitution or premature age, and the nervous system be invigorated and again restored to equilibrium; for bodily health can not be secured without due attention to exercise, which should consist of something which not only gives exercise to the body but amusement and exhilaration to the fatigued mind.

Many a one has broken down irremediably his nervous system, by taking too little physical exercise, and in taxing the brain with mental labor, thus neglecting to keep up a proper balance of action between the physical and intellectual powers.

This important fact should be borne in mind, that the nervous system, or its energies, are closely connected with the stomach or the digestive process; therefore, any forced action on the stomach, which may be properly called the mother of the system, exerts a powerful influence over the health of the body and mind, which has much to do especially with the digestive organs. By this unnatural forced action on the pneumogastric nerve, which is connected with the stomach and muscular coat, we often bring upon ourselves many of the hidden diseases and uncomfortable sensations produced by Dyspepsia, Flatulence, Nervous Complaints, etc. It is fully exemplified in the process of digestion, immediately after a full meal, which renders any considerable physical or mental exertion at that time particu-

larly burdensome, and is proved in the conduct of dumb animals The distinguished and able writer, Dr. E. B. Cook, in his *Philosophy of Health*, makes the following statement: "When the ox or the horse has grazed a full meal, he immediately becomes indisposed for exertion or activity. And the same rule should be observed in regard to his labor, that has been recommended for human beings. He should never be forced into hard labor short of one hour after he has eaten his meal. The ferocious animals, when they have taken a full meal, lose for a time their fierceness, and are comparatively harmless. And so it is with men. If it be necessary to ask a favor of a morose or tigerish man, seek an interview immediately after dinner; if a charity is to be solicited from a creature who carries a miser's soul within his incasement of flesh, see him immediately after dinner. At any other time than after a full meal, he would resist, and succeed, probably, in warding off every motive; but while the nervous energies are taxed with the digestive effort, he can not rouse himself so well to meet the emergency. He will rather grant the favor asked than annoy himself with the effort necessary to repel the invader."

## THE TEMPERAMENTS.

THERE are four temperaments, which is a term of constitutional character with respect to the development and energy of particular parts of the bodily system.

1st. The *Fleshy*, in which there is easily seen a full, soft, and rounded form, characterized by a fair skin, light hair, languid circulation, and general fullness of the nervous system, together with inactivity and a tendency to fat.

2d. The *Plethoric*, in which there is a florid complexion, expanded chest, general vivacity of disposition, quick conception, showing the preponderance of the vascular system, and known generally by the term of plethoric or full habit, the circulation of the blood being very full and strong.

3d. The *Muscular*, in which the muscular system predominates. The body is remarkable for a compactness of fiber, indicative of strength and activity, and determinateness of mental character.

4th. The *Nervous*, or *Melancholic*, presents indications of inordinate and irregular activity of the brain and nerves, with great susceptibility of impressions, which betoken the predominance of the nervous over all the other functions; and the countenance is apt to be overcast with gloom and thought, alike expressive of anxiety and affection. The temperaments are often so blended together that it frequently requires much discrimination and attention to become conversant with the bodily condition of the patient, as during the course of a disease, the person affected not unfrequently presents more or less of each variety of constitution.

In the management of these various peculiarities of temperaments, we should direct our attention strictly to the prevention of every exciting cause.

1st. The Fleshy should restrain the appetite and stimulate the muscles, heroically abbreviate sleep, keep alert to duty, avoid sugars, starches, and fats, and as a general rule prefer a dry and rather animal diet.

2d. The Plethoric should aim at steadying the attention by moderation in all things, especially his expectations, for his tendency is to overlook immediate danger, and to indulge his natural appetites, without the perceptive and discriminating powers of reflection. In the warmth of conviviality, such a man forgets that fear which would be his safeguard, and with a hearty laugh he invites the evil spirit, concealed in the wine cup, or in plainer language, the use of spirituous liquors, "to steal away his brains," and lead him to destruction. How often we have seen a plethoric youth reduced to a wretched fat, nervous, or melancholy man, by tobacco, cigars, and dissipation!

3d. The fibrous man is a choleric character, and his temperament is accompanied by that energy of thought and feeling which distinguishes the races formed by the mixture of the Celt, the Saxon, and the Roman, and which is about to command the world. Such characters, however, are apt, in endeavoring to master others, to enslave themselves; and, with imperious determination to obtain a position, they frequently so devote their energy to business as to sacrifice health. Probably the genuine Jew is the true type of this temperament; for he, though conquered, is never quelled; he sifts the dust for gold, and looks to the Highest out of the grave. Free living, stimulants, and spices tend to render a man of this class an abomination, where he might be a blessing. Being constituted for labor, both of body and mind, he is required duly to proportion the exercises of both, and to employ that kind of aliment or food which he finds invigorating without producing undue excitement. With the help of moderation, such a man is likely to lead a long and useful life; but without good principles, he is more apt to become a Shylock than a Daniel, with an artful face and cruel temper, rather than a good complexion and a wise heart.

4th. The nervous man is already diseased; he has an over-active brain that is apt to work the more it needs rest. The duty in his case is to divert the mind by employing the muscles, and to soothe the sensibilities by engaging the senses. Let him seek society, and solace himself by quietly trying to improve it. Let him feel that there is neither hurry nor permanent shade in the heavens about us, and that darkness is only to refresh us for the light. Let him invigorate the digestive functions by avoiding anxious study, by breathing the free air, by brisk exercise on the hills by riding on horseback, by light, yet nourishing diet, by abstinence from Tea and Coffee, and, in a few words, by attention to all that common sense and physiology teach us concerning the propriety of preserving the balance between thought and action, the use of the muscles and the business of the brain; for certain habits and dispositions of mind, such as melancholy, care, dejection, fear, anxiety, faint-heartedness, and in particular,

avarice and hatred, which are hostile to life, claim a distinguished rank among those means which tend to shorten it.

## GENERAL RULE OF PREVENTION.

Although the Creator has made a law adapted to the continuance of the human species, he has appended to it some limitations and exceptional clauses for our instruction and benefit; therefore, it is right and proper that people who are concerned in them should know them, and avail themselves of the end for which they were divinely instituted. If properly understood and adopted as a general rule, it would save thousands from immense physical and mental suffering. Instead of there being so many born of nervous temperaments, drunkards, with a host of other evils which I might name, who are degrading themselves, their parents, and mankind, a race would be rightly sent forth which would be much easier trained and educated, and whose influence and example would elevate the sinking standard of humanity, and promote the physical, intellectual, and moral redemption of the world. The evil influence of the female mind on her reproductive system, at the time of impregnation, is remarkable. Grief, fear, excitement, nervous affections, anger, melancholy, jealousy, and any unusual excitement, will, in most instances, have a decided influence upon her offspring, and though comparatively unperceived by those who have not examined into the nature of this influence, yet it is certainly so, and the consequences are beyond the power of pen or tongue to depict. Many thousands are indebted to their parents for all of these peculiarities. Then, as you value the happiness of your children and the blessings of Heaven, avail yourselves of a knowledge of these hurtful influences, or you may find occasion for repentance when it is too late to make amends. The fact is, there is a great sympathy between the female mind and her reproductive system. The offspring, while in its fœtal state, receives an impress from the maternal mind, which, though it afterward be modified, can never be wholly eradicated. It there receives a mental and moral mold, the great outlines of which can not be obliterated. We see in the same family very different traits of character among different children. One is all affection and cheerfulness; the second, full of excitement and anger; the third, sensitive and nervous. Trace the history of these back to their fœtal state, and the influences to which they were then exposed by the immediate operations of the mother's mind, the causes of these differences will then appear. As I have before remarked to you, while the paternal influences give the first outlines of character, the immediate maternal influences give the smaller peculiarities. Deformities of physical structure are not untre-

quently produced by some sudden impression being made on the mother's mind by the unexpected appearance of some frightful or disagreeable object. This sympathy is also manifested in the effects of sudden emotions and particular appetites. Many illustrations of this kind might be adduced, together with cases of a mother's marks, in proof of the great sympathy between the mother's reproductive system and the state of her mind.

In this work, it is my intention to present the simple unvarnished truth, so that my readers can easily understand the influence the mind exercises over the physical and nervous system, and the consequences resulting from the various enslaving appetites, and the destructive influences and prostration of the nerves by a direct violation of the laws of Nature, destroying the beautiful work of the Creator in the functions of organic life.

Of all the disorders which affect the human frame there are, perhaps, none which exert so extensive an influence, and at the same time are so little understood, as the whole class of Nervous Diseases. This ought to be less matter of surprise, when it is considered that they are not confined to the body, but invade the province of the mind itself; and while they often constitute distinct disorders, known by a train of symptoms peculiar to themselves, they likewise form a considerable part of many other disorders, and sympathize with all the changes to which the body is liable from age, from climate, from indulgence, from exhaustion, from joy, or from distress. Their effects, as might be supposed, are hardly less various than their causes. It would be difficult to define or explain, unless in a general manner, the various causes of these nervous affections. In fact, what we consider as morbid sensibility, is but an excessive or irregular action of one of the most engaging constituents of human nature. What would be the condition of mankind without hope, without fear, without interest in prospect or in possession? Life itself would be a burden, deprived of this source of animation. But, delightful as this faculty is, it requires, like all our energies, to be restrained within certain bounds, and regulated by proper adjustment, that all parts of the frame may act in harmony. Were men convinced that their health and comfort were so materially dependent upon the regulation of their own minds, they would be more careful to strengthen them by study, moderate them by reason, and confirm by religion, and reduce them to an equanimity not easily disturbed by the crosses and accidents of life. It is from the want of this right judgment of things, that people work themselves up to a state of great misery at the merest trifles. Half the evils of life are inflicted by ourselves. In a commercial country, men are often at the mercy of the winds and waves,

and the failing of some speculation, or disappointment of a cherished hope, has brought some to destruction and death. This is the effect of not seeing things in their true light; of setting a greater value upon riches, honors, or power, than they deserve; for these things, when they have been made undue objects of desire, absorb, as it were, all other considerations, and fill the mind with false hopes and fears, the very fuel of insanity. It is no wonder that the failure of an object that engrosses all a man's thoughts, should upset a mind unguarded by the security of right reason, undisciplined in moral virtue and unsupported by religious faith.

Nervous irritability, irregular sensations, uncontrolled impressions, unfounded uneasiness, and restlessness, qualms, misgivings, and despondency, will sometimes take possession of the mind in spite of our better reason, and throw a cloud over our fairest prospects. Tears will flow, and laughter will break out, unprovoked by sorrow or joy, arising from that fluttering state of animal spirits, which is known by the name of Nervous. If these effects be more common in females than in men, we see a deeper dejection in the latter, filling them with unfounded alarms, either disqualifying them altogether for domestic business, or obliging them to pursue it in heaviness or heartlessness.

The grandest view we can take of man and woman, is to see them, like some fair vessel, proceeding steadily through the ocean of time, their sails being impelled by the feelings and passions of a well-ordered mind, and their irregular excitements controlled by the ballast of a sound understanding, while the judgment sits at the helm, with eyes fixed on the compass of reason and religion.

I have dwelt long on this subject, because it forms a very large proportion of those affections which we have increased, and, in our opinion, are still on the increase; for we can not enter into any society without meeting some individual who complains of being more or less nervous, while we seldom meet with two in which the disease is alike in its symptoms and effects.

Having presented to my readers the most important facts in relation to Nervous Diseases, I trust that those who are held in bondage by their enslaving appetites and passions, may be fully convinced of their errors—of a violation of the laws of their physical nature. Our Heavenly Father has made man in his own image, for elevated enjoyments, for distinguished practical good, and for more reasonable devotion than to the idols of this world.

Another reason why diseases of the Nervous kind are not more frequently removed, is, that patients have seldom determination of character enough to continue sufficiently long in any means prescribed for their relief. It will be necessary to inform the patient that

an effectual cure may be obtained, but a speedy one is not to be expected. You must not be discouraged by a few ineffectual efforts to relieve the complaint; but it must be remembered that frequently the more gradual and progressive the cure, the more certain and permanent it will prove. Age or intemperance, and the continuation of indulgences before mentioned, will give them strength; therefore, sobriety and proper care will lay the foundation for a permanent cure Many have recourse to ardent spirits, which, however, only give temporary relief, and are sure to increase the disease.

Let me, then, impress upon you, in closing my remarks, that every muscle, gland, or tissue, in the system, from the finest muscular fiber to those powerful levers which move the larger bones, is stimulated into action by the nerves of the brain or spinal cord; that the latter are the connecting links of animal and mental being, through every grade of ascending intellect and superior organization. Then how powerful the influence of the Nervous system in relation to Health, both bodily and mentally!

Remedies.—The most melancholy Nervous Affections have been brought on through the workings of an unnatural, exalted, and ungoverned imagination. We must, then, perceive how important it is that this faculty be wisely disciplined or regulated according to the standard of Nature, and to guard ourselves from these moral infirmities and physical ills, by cultivating a contented spirit, confining our wishes and propensities within the limits of reason. Every thing that produces flatulence or wind, or is hard of digestion, should be avoided. All warm liquids are injurious, as Coffee, Green Tea, and ardent Spirits; the constant use of which, and Tobacco, are slow but certain poisons at last. Regular exercise is indispensably necessary; it braces the nerves, gives a firm tone to the muscles and other solids, and carries an even flow of comfort and cheerfulness throughout the entire system.

With respect to sleep, the want of due rest wastes the strength, debilitates the body, and especially destroys the nerves.

Avoid all sudden changes or transitions from one temperature to another, and be cautions of damp feet, as they are an exciting cause of Nervous Affections, and not unfrequently produce Fever.

Long indulgence in mental labor or intense application of the mind, exhausts the nervous system and lays the foundation of a relaxed or weakened brain.

Simplicity of diet is very important. There can be no doubt that two-thirds of the Nervous Diseases are caused by unnatural stimulus, or from too luxurious a style of living. I need hardly remark, that when the stomach is in a sound state, and digestion is properly per

formed, the spirits are good, and the body is light and easy; but when that important organ is out of order, a sense of languor and debility, with lowness of spirits, watchfulness, or troublesome dreams, nightmare, and a host of nervous disorders, are the consequences.

To eradicate or remove some of the most severe Chronic Complaints, the manner of living should be properly regulated. Some patients require a milk and vegetable diet, while those of a weak and poor habit of body, animal food, which contains a greater quantity of nutriment in a given bulk, than either vegetable or farinaceous substances.

Avoid all hot drinks; they are unnatural to man, as well as to all other animals; they relax the nerves of the stomach, heart, and general system, and produce numerous diseases in those who have them already weak. Avoid especially scalding Coffee, Tea, and many other hot drinks, which ruin the stomach, destroy the nervous system, produce palpitations of the heart, and occasion an abundance of other mischief.

Then, let me urge upon you, particularly, one of Nature's best remedies, pure Cold Water; it acts as a tonic by strengthening the whole system internally as well as outwardly; it passes off gently through the different excretions, as the perspiration, the urine, by stool, etc. I believe that Nervous Complaints generally can be permanently cured by the use of Cold Water; or greatly ameliorated or soothed by Cold Bathing, properly used. From this mode of treatment I have seen many cures effected, that were considered beyond the usual mode of treatment, as Judge McKinly, of Louisville, Kentucky, with hundreds of other cases of long standing, that could be enumerated, who have been relieved and restored to health by the exclusive use of the Water Cure. Water was the drink provided by the beneficent Creator for our first parents in Eden; and throughout the Scriptures we find the most powerful evidence that it should be preferred to all others.

Notwithstanding that theory and practice have demonstrated, in every possible way, that Water is best, yet the majority of mankind have yet but a faint idea of the extent of its salubrious effects, when taken in proper quantity internally, or applied in different ways externally.

When we recommend Cold Bathing, many begin to make objections against it, as if it required a great deal of preparation, or more or less complicated apparatus. What is called the Hand Bath, may be taken by any one, and in all circumstances. If you have a bowl of water, remove your clothing, and apply the water to your whole body with a sponge or towel; then, with a coarse, dry towel, rub well

until the friction gives you a fine glow over the whole surface of the skin; or, if preferred, this friction may be produced by the hand or a brush. You may have the water colder or warmer, as suits your convenience; though most persons prefer it quite cold. They are less chilled by the process than if the water is warmed; and here are all the mysteries which necessarily belong to the mysterious process. Thus, you see, while you would make Cold Bathing a more or less complicated process, it may be made very simple; nor does it absolutely involve the loss of much time. No one can have any excuse for neglecting it, who can get a basin of water and ten minutes' leisure, as nothing can exceed the value of the Cold Bath in procuring relief in Mental and Nervous Disorders.

It has been generally believed that Nervous Complaints are rarely permanently cured; but that their symptoms may be occasionally ameliorated or soothed, and the sufferer's existence made more comfortable and endurable. Now, I am fully convinced by experience in such cases, that if the patient will only be regular in this mode of treatment, and give Nature time, there will be no doubt of great relief, or a thorough cure obtained.

All who have ever tried it are familiar with the bracing effects of Cold Bathing, and the soothing influence of the Tepid or Warm Bath, after a day of fatigue and toil; it quiets the nervous system, and when taken at night, is one of the best and safest anodynes for domestic practice. It may be taken night and morning with great advantage, either cold, tepid, or warm, as it may best agree with the patient. The Tepid or even Warm Bath, to some constitutions, is the most soothing or tranquilizing to the nervous system; but I have found the Cold Bath decidedly the most invigorating or strengthening; and is, in fact, the only form which may, with any propriety, be called a *tonic*. Nothing contributes more effectually than cold bathing and quick friction, or rubbing over the whole body, to the free circulation of the blood, producing a full, bright, and ruddy skin, which is ranked among the surest tokens of health; the spirits feel buoyant and lively, and there is a consequent disposition to quick, cheerful, muscular motions and pleasurable sensations. But I need not further dwell on what will be so apparent to all. Then, give up your fears and prejudices against this invaluable remedy, and try gradually, by first using the water moderately warm, until the system, by degrees, becomes accustomed to the Cold Bath, and you will find its wholesome influence increase the appetite, tranquilize the nervous system, and restore the general health.

Let all who have weak nerves rise early and take exercise before breakfast, as indulging too long in sleep debilitates and relaxes the

body. Exercise in Nervous Disorders is equal, if not superior, to medicines. Everything which has a tendency to divert the mind, by change of place and sight of new objects, very materially aids in removing these complaints. Hence, traveling, visiting strange countries, towns, and attractive scenery, with exercise as much as possible in the open air, on horseback, in open carriage, and sometimes on foot, will be found highly beneficial. Regular bathing, so as to keep the skin in a healthy condition; daily exercise in the pure, free air of heaven; lively, genial conversation; attractive scenery, interesting sights, and other healthy "food for the mind," will cure nearly every Nervous Complaint. Of course, in specific cases, it will be necessary to make use of specific remedies, which will be found under the proper heads.

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# DISEASES OF THE NERVES.

## NEURALGIA.

This nervous disease, in plain language, means a pain in a nerve; if in the face, it is Tic Douloureux. It is one of the most painful affections to which the human body is liable. In most instances the pain is the only symptom, as there is no swelling of the part, or sign of inflammation; but a darting, throbbing pain, and an acute soreness or sensibility. This aching or twitching pain is subject to intermissions, and remissions, and the disease is more or less of long duration, or, in other words, of chronic or long standing. The most general seat of Neuralgic pain is in the face and head, but sometimes it attacks the breast, the leg, and the foot, and not infrequently various parts of the body, depending greatly upon the state of the nervous system. When this complaint is in the face, called Tic Douloureux, or Tri-facial Neuralgia, the pain shoots from the mouth to the eyes, and often to the ear, and over the cheek, palate, teeth, and jaws. The adjoining muscles are subject to convulsive twitchings. The pain follows the course of some particular nerve. In a second the paroxysm and stinging agony is intense, and not infrequently the pain is so sudden and agonizing as to be almost insupportable.

In most instances, I have observed this disease accompanied with marked constitutional or local ailment. The exact nature of Neuralgia is obscure; it is, however, certain that some of the most intractable cases have been derived from hereditary causes, and especially those of a peculiar nervous temperament. The laws which regulate the entailment of disease by hereditary descent, and what connection exists between the mind and the brain, or how the sentient being perceives impressions through the nervous

system, it is not our intention or our province to notice here. There is a limit to human investigation, as there is to human ambition. Wherever the natural inquirer directs his eager flight — whether to the anatomy or physiology of animal or vegetable life — whether to the chemical attractions and repulsions of matter, or to those regions on which the eye of the astronomer lingers with untiring gaze and ceaseless wonder, he still meets with that line drawn, as a barrier, between the field that falls within the legitimate survey of the physical inquirer, and those unknown regions destined only to be revealed by their Author, our Heavenly Father, in the final recapitulating chapter of His mysterious operations. It is not permitted to finite intelligence to solve the great problems of Omniscience. Hereditary descent is one of the principal causes which give rise to Nervous Diseases: it may be traced in every form of insanity, from wandering intellect to the most furious maniacal paroxysms, and in those tuberculous affections which accompany families through successive generations, sometimes overleaping one, but probably never becoming completely obliterated until the race is extinguished.

The exciting causes of Neuralgia, or Nervous Diseases, are, especially, damp and cold weather, or damp alone, if combined with malaria; exposure to currents of cold air, especially if the individual is over-heated, excited, or fatigued. In this way railroad traveling has proved a fertile source of Neuralgic affections. Debility of constitution renders the individual much more susceptible to these and other exciting causes. It has often, too, been traced to anxiety of mind, which is well known to have a most powerful influence over the nervous system. Nervousness is a term usually applied to an indefinite something — a mixture of mental and bodily disorders and irritability, generally the product of weakness.

Females are much more liable to nervous disorders than males, independent of hysterical affections, which constitute one of the most marked phases of these maladies, and many of the remarks on which apply to the present subject. In Nervous Diseases there is usually great susceptibility, as before remarked, to external influences, and at the same time mental emotions, whether of joy or grief, fancied or real, exert much influence over the body and its functions. The heart palpitates, the hand trembles, and the face flushes under the most trival excitement. Much of this is undoubtedly due to constitutional organization, but it is also greatly increased in debilitated states of those who have never been what is called "nervous" from impaired health, or from habits of intemperance.

The temporary relief to nervous sensations which is afforded by alcoholic stimulants, or, in plain language, spirituous liquors, is very apt to lead those who suffer from such sensations, to put too much trust in, and to resort too habitually to, the use of stimulants — a practice which must be followed by the most pernicious consequences, and has led its thousands to ruin.

In closing this important subject, I must make one remark, that this enemy of human life, Intemperance, has dreadfully increased; and that the degree of civilization, luxury, refinement, and deviation from nature, in which we at present live, by so highly exciting and stimulating our existence, has been very destructive to human life. We shall find, on examination, that men appear, as it were, to have anxiously studied how they might entail on their posterity the greatest possible amount of mental and bodily suffering; seldom, if ever, heeding the admonition of our Heavenly Father, "I will visit the sins of the parents upon the children to the third and fourth generation.

Remedies.—The fact of Constipation being the forerunner of a variety of Nervous Affections, as Neuralgia, Nervous Headache, Epilepsy, Hysteric Fits, St. Vitus' Dance, Asthma, Palpitation of the Heart, Indigestion, and Coldness of the Extremities, forcibly points out the necessity of attending to the state of the bowels.

Those of a nervous temperament, who are more or less subject to Neuralgia or Nervous Affections, should avoid exposure to atmospherical changes, especially high winds—for the effect of changes in the wind, the temperature and density of the atmosphere, on some nervous subjects, is very remarkable. I have frequently known asthmatics, in particular, prophesy, by their feelings, a change in the weather a day or two before it took place, although the state of the wind, temperature, and density of the air, at the time, indicated no alteration, apparently being in the state they had been for some days. People who have lost a limb can foretell an unfriendly change of weather by spasms in the muscles that had been divided or wounded, and the motion of the muscles is evident to the eye.

Those involuntary actions of the muscles prove that the changes interrupt the equilibrium of action between the nerves and muscular system by disturbing the nerves. In an epileptic subject, an unfriendly change will bring on a paroxysm, while the effects from mental agitation on nervous persons, and those affected with Neuralgia, are so well known, by experience and observation, as to require no farther remark. It is, therefore, incumbent on persons of morbid temperaments to acquaint themselves with the peculiarities of their own constitutions, and so adapt the various remedies used as to allay the nervous excitement peculiar to their constitutions—for some have more difficulties to combat in obtaining relief from nervous troubles, than others.

The class of remedies capable of allaying nervous irritation, and invigorating or strengthening the system, are very important—such as regular and sufficient exercise in the open air, in good weather, on foot or horseback, diet properly adapted to the stomach, strict attention to the bowels, cleanliness of the skin, and cold bathing. The producing cause, whether excessive mental exertion, sedentary employment, late hours, or excess of any kind, must, of course, be modified as much as possible.

The Shower Bath is a valuable and often a useful remedy in these affections; but some persons are so nervous that they cannot bear the shock. When this is the case, a cold or tepid douche down the back does much good, particularly if there be any tenderness of the spine on pressure—a fact which should always be investigated in those who suffer much from nervous diseases, as this symptom very often exists and is overlooked. When the tenderness is at all marked, which can be easily known by pressure down the spine or backbone, the darting pain or nervousness will be greatly increased, indicating the necessity for special treatment by counter-irritation, etc.

The soothing effect of Hot Fomentations at night, and the Cold Bath in the morning, with friction (by which is meant, rubbing the whole body well with a coarse towel), will greatly relieve distressing nervousness, until gradually a very important change will be effected throughout the whole system. In females of delicate constitution, or in that period connected with what is called, in females, "change of life," and the usual monthly irritation of the womb, the Warm or Tepid Bath, with friction, will, in most cases, greatly relieve the sensitiveness of the nervous system during these "changes." With but few exceptions, I have generally found that Hot Fomentations, in the treatment of Neuralgia, afford relief.

I feel assured, from a long experience, that much depends in the various diseases, on the digestive organs, which, in plain language, means a proper regulation of diet—as, for instance, the Nervous Headache, or of the face, which is the daily torment of thousands, is produced by visceral irritation and a disordered state of the stomach. These more or less affect this disease, hence the necessity of employing those remedies which tend to diminish irritation, and correct the evil constitutional tendencies and habits of the patient. The treatment, then, of Neuralgia, is, in a great measure, dependent upon the exciting causes which have induced the troublesome affection.

I have been frequently asked, "Doctor, what is the neuralgic constitution?" I have invariably answered, that "Neuralgia occurs oftenest in men, of great muscular power, who have been in the habit of exerting themselves freely, and at the same time tasking their viscera with high living and venereal exhaustion — circumstances most likely to create irritation in the viscera, and to render the spinal cord and its nerves the parts susceptible to a morbid sympathy. But this malady, or disease, is also observable in persons who have over-worked their brains to the detriment of their stomachs, which they at the same time worried with stimulants. On these grounds, we find more of the disease among those who have overtaxed their minds by business and great anxiety to accumulate riches, disappointed politicians, hard drinkers of spirits, dyspeptics, and excessive users of tobacco. Among women, it occurs in those whose deeply feeling minds have trenched upon the integrity of their viscera; or in those who

have strained the latter by rapid child-bearing and prolonged nursing of their children." When once this disease is fully established, it is generally worse in the spring than at other seasons. Stormy weather, at any period of the year, exasperates it.

Certain nerves of the body are more liable to Neuralgic disease than others; and these have been written and spoken of as distinct diseases. To the neuralgia of the nerve, whose branches come out of the bone above the eye-ball, under the eye, and in the lower jaw, sending branches to the whole side of the face, and to the teeth, the specific term of Neuralgia or Tic Douloureux is usually applied. When the large nerve which runs behind the hip-joint down the back of the thigh is affected, the disease is called Sciatica. Tic Douloureux also occurs, and indeed is pretty frequent in the nerves of the arm, especially of the fore-arm. As a transitory sign of Dyspepsia, it is often felt in the fingers, in the shoulders, and in the ribs. I have seen cases of Neuralgia where every principal nerve in the body was attacked in the course of twenty-four hours—one, that exposure of the hand out of a glove for five minutes caused exquisite pain. It is vain in our present knowledge of the nervous system to speculate as to the cause why one nerve, rather than another, becomes the seat of morbid sympathy and pain. It is, however, evident that derangement of the liver is connected with Sciatica; that nervous disorder of the stomach itself is mostly found with Neuralgia of the face; and that when irritation of the womb is superadded to that of the stomach, Neuralgia or Tic Douloureux of the Scalp, or Nervous Headache is the most common result. The peculiarities of the nervous habit, as I have already observed, are so very opposite, that the best advice that can be given to a nervous invalid is to avoid those articles which evidently disagree with the stomach, and not to oppress or over-stimulate it with too great a quantity of those which do agree. So far as a general rule can be laid down with respect to diet, etc., a nervous patient should be as competent to judge as the most experienced physician. As I have before told you, moderate exercise is necessary to keep up the functions of the viscera, and that should be preferred which pleasantly engages the mind and keeps it as free as possible from over-excitement. Pleasant relief may be had in agreeable society, and by traveling in countries which afford a variety of scenery, avoiding marshy parts —the vapors of which are very apt to disturb the nervous system, particularly of Rheumatic and Asthmatic subjects.

Sometimes local irritation of the system runs so high as to render the use of an article of the class of remedies termed sedatives necessary—medicines that quiet the nervous system; such as Belladonna, Camphor, Castor, Valerian, and Morphine. As anodynes, the Morphine and Belladonna and Stramonium are the most effectual. One of them should be given, just before an expected attack, which generally comes on in the morning, and repeated once or twice till the pain is mitigated or relieved. These articles

should be used both externally, in the form of washes and poultices, and internally in the form of pills, powders, and tinctures, which may be prepared by a druggist. Blisters and Setons are often used in these complaints. Stimulants and Tonics must be used as the occasion and nature of the case require. Cathartics or Purgative Medicines relax the system and lessen the pain. The Hot Bath, hot fomentations, or a Hot Water Bottle constantly applied to the painful part, often affords great relief.

In severe cases of Nervous Disease, a few drops of Laudanum or Morphine are the most certain to moderate the painful feeling of the mind. All kinds of Spirits are bad, and should never be used, unless to obviate some sinking of the system which can be relieved in no other way. To produce sleep, the Laudanum or Morphine should be taken in the day-time, at least four hours before the usual bed-time. Probably the best and most appropriate anodyne for this disease is the Valerian, when obtained fresh and of a good quality. An even teaspoonful of the powder is about the ordinary dose. It should he taken once in two hours through the day. An ounce of it may be steeped in a $\frac{1}{2}$ pint of water, and 2 tablespoonfuls taken every two hours.

The nerves sometimes require to be strengthened by the use of Quinine, Iron, Arsenic, or Strychnine. Griffith's Mixture of Iron, which can be obtained of an apothecary, is one of the best tonics, and in cases of Neuralgia associated with Anæmia sometimes has a specific action.

The danger of contracting the Morphine habit in this disease is very great, so that its use should be avoided as much as possible.

In Neuralgia, as a tonic, I have always found Quinine one among the most valuable and safest remedies, combined with Morphine — 2 grains of Quinine with $\frac{1}{8}$ or $\frac{1}{4}$ of a grain of Morphine, once or twice a day, as this sedative may be required.

The dose of Morphine is from $\frac{1}{8}$ to $\frac{1}{2}$ grain; one-sixth of a grain is equivalent to a grain of Opium. I mention this particularly, because in all cases where it would be proper to give Opium as a sedative, the Morphine may be used, as many persons, with whom Opium disagrees, can take Morphine without any unpleasant effects. It may be taken in a pill or a powder, whichever is preferred. As local or outward applications, Chloroform Liniment, Cold Water, and warm fomentations, are the best that can be used.

Sometimes surgical operations are resorted to in obstinate cases of Trifacial Neuralgia; the operation is usually a serious one, though often proving entirely successful.

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## SCIATICA.

This is but a species of Neuralgia, which attacks the nerves in or about the hip and thigh, and is to be treated in a similar manner to other forms of Neuralgia and Neuritis.

TREATMENT.—Externally, suitable Rheumatic Liniments are to be used. For Sciatica, the following will be found efficient: Take Alcohol and Oil or Spirits of Turpentine, each, 2 ounces; Chloroform, 1 ounce; Gum Camphor, ½ ounce. Apply to the part and rub in well, two or three times a day. The same will be good in the case of Lumbago. Other liniments, such as are recommended for Rheumatism, Neuralgia, and Nervous Pains, may also be used, if this is not found sufficient.

Internally, the patient should first take an active Vegetable Cathartic, such as the Podophyllin or other Cathartic Pills; then follow, as soon as the physic has operated, with some good Rheumatic Alterative, such as the Tincture of Guaiac.

Steaming the parts or the whole body will be good; and use the Vapor Bath occasionally, where convenient. Indeed the Steam or Vapor Bath, in some form or other, is one of the most important remedies in all Rheumatic affections.

The pelvis should be examined, by the rectum, to make sure there is no tumor pressing on the nerves. If the patient has Rheumatism, 5 to 10 grains of Salicylate of Soda may be given for a few days. Syphilis may cause Sciatica, and proper Syphilitic Treatment should be used in case of a Syphilitic suffering from Sciatica.

Blisters may be raised along the course of the Sciatic Nerve, *i. e.*, along the back of the thigh.

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## NEURITIS.

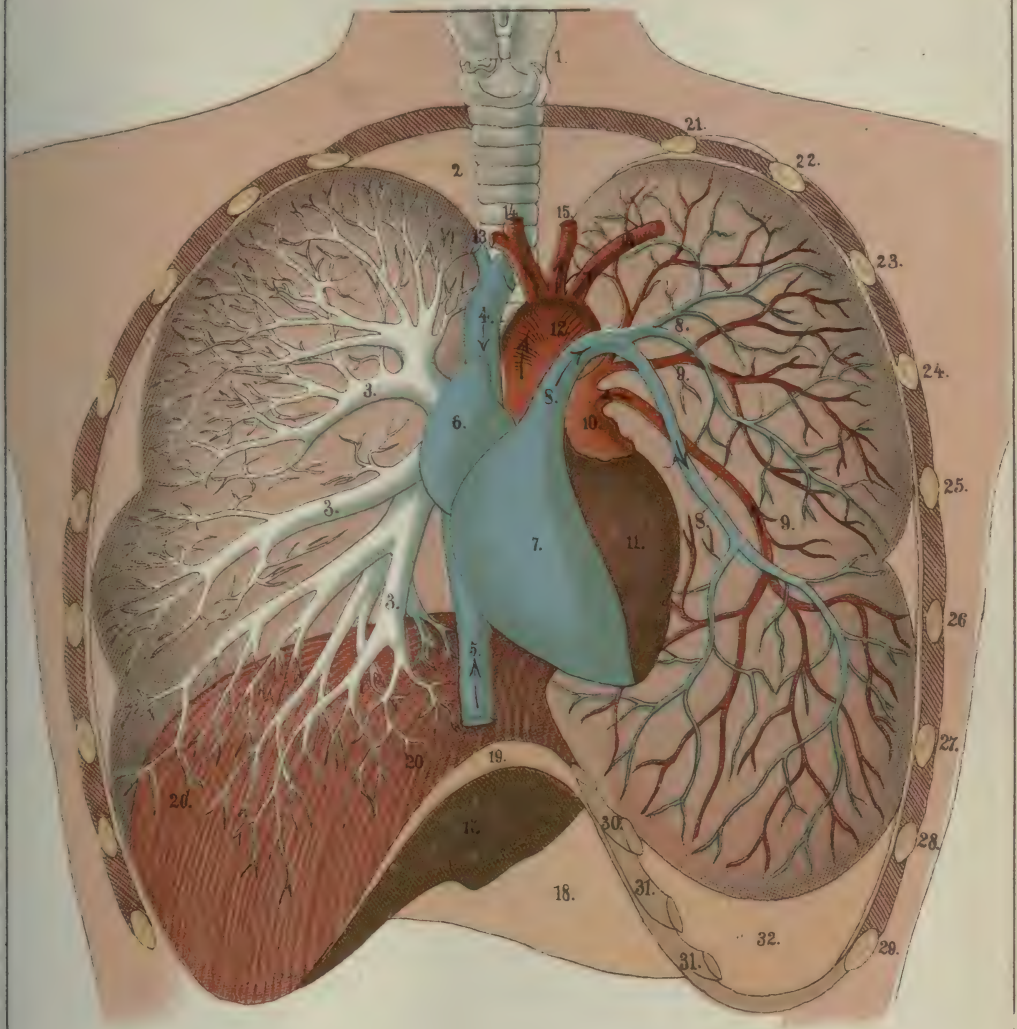
NEURITIS is an inflammation of the nerves. The causes are exposure to wet and cold, to injuries, to the extension of inflammations in adjoining parts, to the poisons of the infectious diseases, as Diphtheria, Typhoid, and Scarlet Fevers. It is also due to the poisonings of Lead, Arsenic, and Alcohol. Neuritis is characteristic of the disease known as *Beri-beri*.

Neuritis produces pain of a boring or stabbing character. The nerves are sensitive to pressure; motion is painful. If the attack is very acute there may be considerable fever, with headache and loss of appetite. The toes and fingers tingle. The muscles usually waste away rapidly. The hands and feet become swollen in some cases.

TREATMENT.—Rest in bed is necessary. Cases accompanied with fever require Salicylate of Soda in 5 grain doses three or four times a day for a few days, and Antipyrine should be used in like doses. Arsenic, in the form of Fowler's solution, and Strychnine should constitute the remaining internal remedies which are of any value.

Gentle massage, *i. e.*, rubbing, should be employed from the start, this will help prevent the shrinking of the muscles.

# ORGANS OF RESPIRATION.




**A — Ramification of the bronchial tubes and blood-vessels of the lungs (Diagram. Anterior chest wall removed).**

1. The larynx.
2. The windpipe.
3. The bronchial tubes and their ramifications in the right lung.
4. Upper vena cava.
5. Lower vena cava.
6. Right auricle of the heart.
7. Right ventricle of the heart.
8. Pulmonary arteries of left lung.
9. Pulmonary veins of left lung.
10. Left auricular appendage.
11. Left ventricle of the heart.
12. The aorta.
13. Right subclavian artery.
14. Right carotid artery.
15. Left carotid artery.
16. Left subclavian artery.
17. The liver.
18. The stomach.
19. The peritoneum.
20. The diaphragm.
21–27. True ribs.
28, 29. Two false ribs.
30. Cartilages of the true ribs.
31 Cartilages of the false ribs.
32. Part of the pleura.

## NEUROMA.

Neuroma are tumors which form on the nerves. They may be very numerous. We do not know just why they form. They sometimes form in stumps after an amputation, in which case they are quite troublesome. These tumors are somewhat painful to pressure, especially the ones which occur in amputation stumps. Drugs internally or applied externally have no effect upon them; the only cure is to cut them out. They do not come back, except in stumps.

The nerves which supply the special senses are all liable to diseases, themselves, or are affected by diseases in other parts of the nervous system. These diseases are too complicated to treat of extensively in a book of this kind. The opening and closing of the pupil is controlled by a special nerve so intimately connected with others, that many things cause the opening to vary from time to time. Normally the pupils should enlarge in the dark and contract in the light. They should also change in size when the gaze is changed from a near to a distant object. In the same degree of light and looking at the same object both pupils should be of the same size; irregularity usually indicates a diseased process some where, usually in the nervous system.

Drooping of the eyelid is sometimes due to disease of the nerve supplying the muscles of the lids.

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# DISEASES OF THE SPINAL CORD.

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## ACUTE MYELITIS—ACUTE INFLAMMATION OF THE SPINAL CORD.

Acute Myelitis—Acute Inflammation of the Spinal Cord is caused by exposure to cold, over-exertion, the poisons of the Acute Fevers,—Small-pox, Measles, etc.,—by accidents, Syphilis, and Tumors.

The onset is often preceded by pains in the back or legs; there may be a sensation as of a girdle about the body, accompanied with pain. Often the attack occurs while the patient is on the street, making it difficult or impossible to get home without assistance. There is usually Paraplegia, *i. e.*, paralysis of both legs and of the lower part of the body. There may be paralysis of the rectum and bladder, neither organ being able to evacuate their contents, or there is no control over them and evacuations are

continuous. Bed Sores develop rapidly. The muscles shrink and soon become very small. There is usually high fever and delirium. Sometimes death occurs in four or five days; other cases recover with more or less paralysis as a result of the inflammation.

## ACUTE POLIOMYELITIS ANTERIOR—INFANTILE PARALYSIS.

The cause is unknown, although teething and exposure to cold are said to have some influence in producing this unfortunate disease.

After a slight indisposition or feverishness, or, as in one case I recall, after waking up in the morning, the child was discovered to have lost the use of a limb. It may affect both legs, or a leg and opposite arm. The arm is seldom entirely paralyzed. The muscles rapidly disappear, *i. e.*, waste away or get smaller. There is seldom much pain.

Complete recovery in either form of Acute Inflammation of the Cord seldom occurs. In the first form, which occurs in older people, great care must be used to prevent Bed Sores. The urine should be drawn at regular periods by means of a catheter, the bowels must be attended to, and injections are usually necessary. Drugs are of little value in the acute stages. Later the muscles should be massaged, at first once a day; later, twice. Electricity should not be used in the early stages, and at no time is as valuable as massage. Later, tonics, especially Strychnine and Arsenic, may be administered. A sixtieth of a grain of Strychnine and a drop or two of Fowler's solution of Arsenic may be given to an adult three times a day; the dose for a child must be reduced in proportion to age. Diet must be nutritious, using milk freely.

Deformity often occurs. This to a great extent may be overcome by the use of proper appliances. It may be obviated to a certain degree, if the mother is careful to prevent the limbs from assuming unnatural positions.

## LOCOMOTOR ATAXIA—TABES DORSALIS.

This is a chronic, progessive hardening of the Spinal Cord, caused by Syphilis and the excessive use of Alcohol. Sexual excesses, over-exertion, and exposure are also said to be causes.

Symptoms.—Early there are lightning-like pains in the legs, of short duration and occurring from time to time. The eyelids may droop, sometimes there is double vision, *i. e.*, the patient sees two of everything instead of one. There may occur total blindness. The knee jerk is lost, *i. e.*, the leg is not thrown forward, when the knee is struck as the leg is resting

upon the other knee. Normally this should occur, if the knee is struck in the right place. There is usually a gradual loss of sexual power. Sometimes the disease does not progress beyond this stage.

Later the patient notices some difficulty in keeping his balance when walking in the dark. Standing with the feet together and the eyes closed is impossible, at least without great swaying. Descending stairs becomes difficult. The patient assumes a peculiar gait, with the legs wide apart; he lifts the foot higher than necessary and puts down the heel first, or at least the entire sole. There may be attacks of intense pain in the stomach. Finally the limbs become paralyzed and the patient becomes a bed-ridden invalid. Some other disease now usually attacks the weakened body and death relieves the sufferings. Complete recovery never occurs. The progress of the disease may be arrested. Usually death occurs from some intercurrent disease.

The patient should live a quiet life, keeping at his usual occupation as long as possible. Diet should be nourishing, and life made as pleasant as possible. For the pain, Morphine should be used, also rest in bed, with Mustard Plasters to the back. Nitroglycerine is sometimes of service. As a rule drugs are of little value.

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# DISEASES OF THE BRAIN.

## INFLAMMATION OF THE BRAIN.

Inflammation of the Brain is of two kinds; that which affects the substance of the brain itself, and that which is located in the membranes only. It is often symptomatic of other diseases, as Fevers, Eruptive diseases, and sudden Constipation of the Bowels.

Causes.—Whatever produces Congestion of the Head may cause Inflammation of the Brain, or of its membranes; as fits of passion, intense study, intemperate use of ardent spirits, and exposure to great heat of the sun. Fractures of the skull, blows upon the head, and suppressed evacuations, may also produce it.

Symptoms.—Inflammation of the Brain is generally attended with flushed face, redness of the eyes, pain in the head, wakefulness, intolerance of light and sound, and more or less inflammatory fever. If the substance of the brain is affected, there will also be delirium. There is also apt to be pain in the stomach, which may be disordered and cause the congestion. The head is usually hot, the feet cold, and the bowels generally costive. The disease may prove fatal in a few days, or it may continued for months. Sometimes the patient becomes quite delirious.

TREATMENT.— Efforts should be made to restore the blood to the extremities, and thus divert it from the brain. Bathe the feet in a warm Alkaline Bath, made by adding a little Saleratus, or Lye, to warm water. This should be done two or three times a day. Make cold applications to the head, face, and neck — keep the head cool, as well as you can, and give a brisk, active Cathartic, of the hydragogue kind, by which is meant purgative medicines that produce watery discharges from the bowels. There is nothing better for this than two or three drachms of Epsom Salts, with a little Anise Oil and Tincture of Cardamom. Jalap and Cream of Tartar will do, if you cannot get the Salts. The Cathartic should be repeated every morning or evening, till the patient gives evidence of being out of immediate danger, unless it weakens too much, in which case it should not be repeated.

Apply a Mustard Plaster to the back of the neck, and a large one also over the stomach and abdomen.

At night, apply Mustard Drafts to the feet and legs. If there is great pain in the head, and the cold applications do not relieve it, five to ten grains of Antipyrine may be given to an adult.

The patient may be allowed to drink Lemonade, and water and milk freely; the diet should be light and nutritious.

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## PARALYTIC DEMENTIA—GENERAL PARESIS.

THIS is a disease of the brain which is much like the disease of the cord called Locomotor Ataxia. It occurs most commonly in men between the ages of thirty and forty-five. In a large majority of cases it is a result of Syphilis.

The first symptoms are not very suggestive,— usually the patient commences to lose interest in his business affairs, becomes absent-minded, careless, inconsiderate, and though he may be able to do regular routine work, does not seem to be able to take up any new work; the sexual instinct is not reasonably controlled. On the other hand, tremendous projects fill the mind, and the patient becomes extremely egotistical and boastful of himself and his. Finally, he gets to where he imagines he has reached the highest pinnacle of success in his particular line of work. Either set of the above symptoms may be early signs of Peresis.

A tremor of the lips and tongue and irregularity of the pupils is now to be noticed. The gait assumes a peculiar, unnatural movement. The patient may now sink into a hypochondriac state. Sleeplessness is common. There may be epileptic seizures followed by various forms of paralysis. The bladder and rectum become paralyzed, urine and fæces being passed involuntarily. The patient now becomes a bed-ridden invalid,

extremely liable to Bed Sores. Death occurs from exhaustion or some intercurrent disease.

If the disease is due to Syphilis, and is recognized early, large doses of Iodide of Potassium should be administered, in the hope of cutting the disease off. If this is not successful, the quiet, orderly life of a hospital for insane, is the best place for the patient. Bromides should be used for sleeplessness and for the Epilepsy. Long remissions sometimes occur, but these are not due to the drugs.

## TUMORS OF THE BRAIN.

Various tumors of the brain may exist and cause a varied number of symptoms, according to their location. They may cause Paralysis, loss of speech, deafness, blindness, and finally, death; such are a few of the many possible symptoms of Tumor of the Brain. Medicines are of little value; the Tumors may be removed by means of a surgical operation.

## APOPLEXY.

Apoplexy is a disease characterized by a sudden loss of feeling, consciousness, and the power of voluntary motion. Its immediate cause is internal pressure upon the brain, from congestion or effusion. It is most usually produced by the escape of blood from a ruptured vessel of the brain. It generally attacks elderly or middle-aged persons, and seldom occurs in early life.

Symptoms.— The disease is sometimes preceded by certain premonitory symptoms, such as fullness and weight in the head, dimness of sight, roaring in the ears, confusion of ideas, numbness in some portion of the body, and other evidences of slight or partial Paralysis. But cases sometimes occur without any warning, even in the midst of apparent good health.

When a person is attacked, he suddenly falls, losing for the time his sight, hearing, feeling, and power of motion, while the action of the heart and lungs still continue. The veins of the face and neck become turgid with blood; the arteries throb; pulse full, strong, and slow; the breathing is also slow, and the powers of swallowing much impaired, or entirely lost. This condition may continue for a few minutes only, or for several hours— when, if not fatal, it slowly yields to the power of nature, or the effect of remedies. The patient may entirely recover from the effects of the disease, but it is very often the case that partial Paralysis will remain for a long time, and it may become permanent. The mind is often more or less permanently injured, and Inflammation of the Brain may also result as a consequence.

Persons usually recover from the first attack, and may possibly from the second; but the third, of the severe form, generally proves fatal. Profound coma or stupor, small and quivering pulse, cold extremities, cold sweat on the skin, with increasing intervals between breathing, are to be regarded as fatal symptoms.

CAUSES.—In some persons there is a hereditary predisposition to Apoplexy. It is also said that persons with a certain formation of body, as a full, plethoric habit, low stature, broad shoulders, and short, thick neck, are predisposed to the disease. It occurs, however, quite frequently in persons of an opposite formation of body.

A predisposition to the disease is also acquired by certain habits of life, such as high living, habitual intoxication, sedentary pursuits, and long continued mental exertion. Among the exciting causes may be named, distension of the stomach by a full meal, immoderate use of ardent spirits, violent exercise, severe fits of coughing, stooping to blow the fire, violent passion, and straining at the stool.

TREATMENT.—The first thing to be done in a case of Apoplexy, is to equalize the circulation, thus withdrawing the pressure of blood from the brain, and then take measures to prevent an excessive return of it to that organ again.

Prompt and energetic means are to be employed. Place the patient in an easy position, with the head elevated. Remove every thing from the neck that might prevent the free return of blood from the head. Apply cold water freely to the head, face, and neck, and as soon as possible place the feet and legs in hot water. Strip the patient, rub the feet and legs, gradually extending the rubbing up over the body and arms, applying warm water, to which has been added some common salt. This will produce a warmth to the extremities and a free action in the capillary vessels, which will invite the blood to those parts and withdraw it from the brain.

At the same time, if convenient, and the attack seems to be a severe one, preparations should be made to put the patient in a Warm Bath, sufficiently large to contain the whole body, as high as the arms or shoulders. If the first process does not succeed in restoring consciousness in half an hour, he should be returned to the bath for another half hour, or until relief is obtained, be it long or short. Keep the head cool all the while.

As soon as the patient has been restored to consciousness and relieved of the urgent symptoms, he should be placed in bed, with the head and shoulders somewhat elevated, and hot bricks or stones placed about his legs and body. (Be sure not to have these too hot, as burns are readily produced.) As soon as he can swallow, a brisk, active purgative should be given. For this purpose there is nothing better than an ounce of Epsom Salts with a little Tincture of Cardamom and a drop or two of Oil of Anise in a little Warm Water. If it does not operate in an hour, repeat the dose.

As the bowels are generally constipated in this disease, it would be well to aid the operation by giving an injection, composed of a spoonful of the same physic in a pint of Warm Water, a large spoonful or two of Glycerine may be added.

A large Mustard Plaster should be applied over the region of the stomach. This will have a tendency to prevent Inflammation of the Brain.

If the pulse is full, strong, and bounding, bleeding should be done at once, and consciousness will probably return soon. If the pulse is soft and weak, bleeding should be avoided. Give no Opium—it will only aggravate the disease. During convalescence, the purgatives should be repeated every few days, for a week or two.

After recovery, be careful in the diet and habits. Avoid all strong, highly-seasoned Victuals, Wines, and Liquors of every kind. Use mainly a spare Vegetable diet. Make use of frequent bathings, with friction, and moderate exercise in the open air. Keep the feet warm. Avoid fatigue of both body and mind, and in all things observe strict temperance.

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## LETHARGY—COMA.

Lethargy, or Coma, as it is sometimes called, is an invincible and determined drowsiness or inclination to sleep. It seems often to be a mild species of Apoplexy. The patient is with great difficulty awakened when in this state; if aroused, he often remains destitute both of consciousness and memory, and instantly falls into a sleep again, if left to himself.

Lethargy is often a symptom of Apoplexy, or tendency to that disease; it may also be induced by the habitual use of Opium or other narcotics; and also by derangement of the stomach.

Treatment.—Give an active Hydragogue Physic—a full dose of Calomel (2 to 3 grains); or powdered Mayapple Root, or Jalap, with a teaspoonful of Cream of Tartar; or 2 or 3 grains of Podophyllin, with Cream of Tartar. Bathe the feet and legs in Warm Water, and apply Mustard Drafts to the feet, legs, and wrists. If this is not sufficient, give an active emetic, and repeat the Physic, Bathing, and Mustard Drafts. If derangement of the stomach and liver seem to be the cause, give an Emetic first; and after giving a brisk Cathartic, continue the use of Phosphate of Soda once or twice a week. Bathe the feet often, and the whole surface once a day, with severe friction; take exercise, and make use of a light vegetable diet.

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## DROPSY OF THE HEAD—HYDROCEPHALUS.

More properly speaking, Dropsy of the Brain, is a disease which almost exclusively affects children, and generally under three or four years of age.

It is very difficult to cure, if once fully established, even by the most skillful physicians; it is also extremely difficult to detect the disease in its early stage, owing to the inability of the little sufferer to describe its symptoms. Dropsy of the Brain is not an original disease, but is almost invariably an effect of some other disease. Meningitis, if it does not prove fatal, often produces this condition. Tumors of the Brain often cause the condition. Children are sometimes born with the disease already started. In children the head usually becomes greatly enlarged, the eyes protrude, veins stand out over the temples, and the child has a peculiar, pathetic cry. Dropsy of the Brain first begins by inflammation, usually of the membrane or covering of the brain, and it is from this organ that the effusion or secretion of water takes place.

SYMPTOMS.— The inflammation in the head which produces the Dropsy is generally gradual and slow, and hence is seldom attended with any very violent symptoms. The most common and unerring symptom is a sleepiness or quiet drowsiness—a sort of stupor. There is undoubtedly pain and distress in the head, and the little patient, though it may not be able to speak, will frequently put up its hands to its head, and make other demonstrations which show that the brain has become involved. The tongue becomes covered with a white fur, the head is unusually hot, face at first flushed, but after a little while is apt to become pallid, or of a natural color; the eyes are dull and heavy, the pulse is feeble, while the arteries of the neck and temples beat strong; the appetite is entirely lost, and often there is sickness at the stomach and vomiting. The bowels now become costive, the abdomen hot and often bloated or tympanitic, while the hands and feet are apt to be cold. As the disease progresses, the child becomes disposed to doze or sleep apparently all the while.

TREATMENT.— Medicines are absolutely useless, except to keep up the general conditions, they do not act upon the Hydrocephalus. The only treatment which promises anything at all is tapping, *i. e.*, drawing off the fluid by means of a surgical operation and then strapping the head with surgeon's plaster, to produce pressure. Do not annoy the child with blisters, counter-irritants, and the like, for they are of no avail.

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## CONGESTION OF THE HEAD.

SOME persons are affected with what is commonly called a Rush of Blood to the Head. It is one of the symptoms of Plethora, or over-fullness of blood in the system, and of a deranged or unequal circulation. It may also be a symptom of a tendency to Apoplexy. If it leads to Headache, it comes under the head of Plethoric Headache (which I have already noticed), and must be treated accordingly.

A person subject to fullness of the head, dizziness, rush of blood to the head, etc., should pay some attention to the matter, or it may lead to more serious consequences. It will invariably be found that when there are symptoms of Congestion or Rush of Blood to the Head, there will be constipation or costiveness of the bowels. Constipation may, indeed, be the immediate or exciting cause. The bowels being constipated, or bound up, the circulation of the blood in them will be slow and limited; while the over-fullness of the bowels causes them to become enlarged, and to press upon the larger blood-vessels passing to and from the lower extremities and lower part of the body, thus interfering with the regular and free circulation of the blood, shutting it off to a greater or lesser extent from the lower part of the body, and thereby causing an undue proportion to be thrown to the head. In such condition, the feet and legs will generally be found to be cold, or cooler than they should be; while the head will be hot, the face flushed, and the veins of the neck full and distorted.

Treatment.—Remove the immediate cause—the Constipation of the Bowels. A good dose of Salts will do, or Salts and Senna; or the Hydragogue Cathartic Pills; or Calomel followed by Salts. As soon as the medicine operates, you will feel relieved. If the case is at all serious, the feet and legs should be immersed in water, as hot as can be borne, and a large Mustard Draft applied to the abdomen, to act as a counter-irritant, to draw the blood away from the head.

After relief has been obtained, let the patient see to it that the bowels are kept regular, and in an open or lax state, the feet warm, the skin in a healthy condition, and that the diet be plain, simple, and of easy digestion. If the case is not of sufficient seriousness to require any very active measures, simply keeping the bowels in a healthy, regular condition, and the use of the Belladonna Pills (recommended for Sick Headache), by taking 1 pill a day, or 1 every other day, will be apt to be sufficient to remove the difficulty in the course of a couple or three weeks. This will be found an excellent remedy for all symptoms connected with or caused by Congestion of the Brain or Rush of Blood to the Head.

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## MIGRAINE—MEGRIM.

This is a species of Headache which is confined almost exclusively to the integuments of the head, that is, to parts outside the brain and skull. It affects the nerves of the face, scalp, and integuments of the head, but most usually the face, on one side or the other. It cannot properly be called a Headache. Neither is it Neuralgia, though sometimes it becomes very closely allied to that affection, in which case it should be treated, in some respects, the same as Neuralgia. People can usually tell when an attack

is coming on. Strange things appear before the eyes, as animals, balls of fire, zigzags of light, which may at the same time display many colors. Temporary loss of speech may occur.

It is confined mostly to weak, nervous persons — more frequently affecting females than males, and then those of weak and delicate constitutions and hysterical temperaments. It usually affects some one locality or spot of the face or head — most frequently one side of the face — rendering the place extremely sore or tender, and sensitive to the touch. A gentle or very slight touch, even that of a feather or handkerchief, will often be more painful than a hard pressure of the hand. The surface or skin often becomes red, and not unfrequently swollen. The eyes also become affected, being weak and watery, sometimes red, and usually very tender or sensitive to light.

The pain is also apt to be periodical. It may be severe in the morning and forenoon, and gradually abate and disappear in the afternoon and evening — to return again next morning. It is more apt to be worse of a morning and forenoon, and to disappear or decline in the after part of the day. Sometimes, however, it will appear regularly every day, an hour or so after dinner; in which case it usually recedes about midnight, or between that and daylight. It may occur on the same day of each week or each month.

The real cause is unknown. Usually patients suffering from Migraine are of gouty or rheumatic tendency. Uterine and menstrual disorders may be a cause in women. Eye-strain is a common cause. Adenoid growths in the pharynx of children are often associated with Migraine. Decayed teeth, whether they ache or not, are supposed to cause Migraine. Mental and bodily fatigue and digestive disorders are usually exciting causes.

Treatment.—The remedies suited to this complaint should be tonics and sedatives; something that will quiet the nervous excitement, strengthen the nervous system, and at the same time break up the periodical attacks of the disease, and tone up the whole system. For this purpose any good tonic may be used. Bromides are the best sedatives; if the stomach will bear it, five grains of Bromide of Soda may be administered after each meal; this treatment must be repeated for a long time. If the pulse is tense, a hundredth of a grain of Nitroglycerine may be given once or twice a day for a considerable period of time. If there is Anæmia, Iron and Arsenic should be given as already described under the subject of Anæmia. The eyes, nose, teeth, and in females the uterus, should be examined to determine if there is any source of irritation in these parts, provided the above treatment does not succeed. During the attack the patient should be kept quietly in bed. If the patient feels faint and nauseated a cup of strong coffee or twenty drops of Chloroform will give relief. A quarter of a grain of Cannibas Indica (extract) should

be given every three or four hours until relief is obtained. It may be repeated in smaller doses over longer periods of time. Five to ten grains of Antipyrine may be given at the outset of the attack. The exciting cause is usually known by the patient, and in future should be avoided.

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## HEADACHE—CEPHALALGIA.

### REMARKS ON HEADACHE IN GENERAL.

HEADACHE can hardly be called a disease, though in some rare instances, perhaps, the seat of the difficulty may be in the head, or brain. It is a very common ailment, however; so common that but little attention is given to it by those who suffer from it much of the time, in some form or other. In nine cases out of ten, perhaps, Headache is but a symptom, or effect, of some derangement in another part of the system. Some authors even go so far as to deny that it is ever a primary disease, while many doubt if it ever is so, properly speaking. The brain is often the seat of disease; so also are the membranes within the cranium, or skull, which surround and inclose the brain. When such is the case, there will be more or less Headache. But cases of this kind, though dangerous enough when they occur, are still so rare, compared with the cases of ordinary Headache, that it is safe to say, that fully nine cases out of every ten are merely symptomatic, resulting from some abnormal or unhealthy condition of some other organ or part of the system, or from a general derangement of the whole system.

Notwithstanding the fact that Headache is seldom a disease, it can very generally be relieved, and often removed entirely, by finding out and removing the cause; that is, by treating the disease, or condition of the system, of which the Headache is a symptom or effect. The main difficulty is in finding out what is really the cause of the disease, affection, or derangement; whether it be of the stomach, the liver, the kidneys, or other organ that is out of condition; or whether it be owing to nervous irritation, to Rheumatism, to derangement in the circulation of the blood, to sedentary habits and the want of exercise, to emotions of the mind, to general debility of the system, or to plethora, or too great fullness of the vascular system. But the cause can generally be ascertained by careful observation; then we can generally remove the symptom by removing the cause—can relieve the Headache by correcting the derangement of the system upon which it depends. Hence, if you have the Headache, do not imagine that there is something the matter with your head, or that the seat of the difficulty is in the brain, but go to work and see if you can not find out or discover the cause somewhere else; what organ or part of the system is out of order, or what you have been doing lately in the way of transgressing the laws of

health; whether you have not been sitting up too late at night, losing too much sleep, eating too late or too hearty suppers; whether you have not been too much confined to the house or the office, and failed to take sufficient exercise in the open air; whether your bowels are not too costive; whether you have not some local complaint that through sympathy may give rise to Headache, as strained or over-worked Eyes, Rheumatism, Disease of the Kidneys or Back, Inflammation of the Liver, Dyspepsia, or Sour Stomach, bad circulation of the Blood and Cold Feet, thus causing too great a flow of blood to the head—or some other difficulty or condition, local or general, which may be safely regarded as the cause of your Headache. In nine cases out of ten—more likely a greater proportion than that—it will be found that at least one of the above-named diseases is the cause of the Headache; that it is not a local, primary disease, but results as an effect or symptom, through sympathy from some complaint, or unhealthy condition in some other part of the system, or from a general derangement of the whole. And when you find what the difficulty is, go to work and remedy it. Strike at the cause, the root or seat of the complaint. Very often a slight change in your habits, a little medicine taken, a little care as to what you eat, in short, a little attention to the LAWS OF HEALTH, in your case, will be all that is necessary. But do not expect too much. There are few persons that are not subject to the Headache; many suffer a great deal, or a great part of the time; while in a vast majority of cases, probably, it is impossible, do what we may, to get relief entirely. The most that should be expected, is to modify, palliate, or give as much relief as possible. Say what we will, and speculate as we may, as to the cause of Headache, the remote or primary cause, it is, after all, probably owing to the circulation of the blood in the brain, or to the presence and influence of the blood upon the brain, or to nervous influence. It may be derangement of the Stomach, Liver, Sedentary Habits, or Rheumatism of the joints, or any local cause, that induces this improper flow of blood to the brain, or makes the blood unhealthy, or (if of a nervous character) that causes the derangement. Yet it is the contact of the blood with the brain that is the immediate cause; hence, so long as the blood circulates, and the nerves are sensitive to pain, so long may it be expected that persons who are subject to Headache will have more or less symptoms of it. If the Headache, for example, is directly caused by too great a pressure of the blood on the brain (and this is the case generally), relieve that pressure and you relieve the Headache, and just in proportion to your relief of the pressure; but as it is impossible to prevent all pressure of blood upon the brain, so it is impossible to prevent all symptoms of Headache.

From what has been said, it is evident that Headache is the result of a great variety of causes; consequently, there will be a variety of Headaches, differing in their manifestations or symptoms, and requiring, more or less, a different treatment. There are many transient, slight Headaches, the

result of anomalous or unknown causes, which are so trifling that they do not require any special treatment, while again there are others which it may be dangerous to neglect. An individual who is subject to Headache — that is, who has not always, or for a long time, been more or less troubled with it, but who, from some cause, suddenly becomes subject to it — should, by all means, pay attention to it; and if he is not able, from any thing he can do or discover to relieve it, should consult a skillful physician, who will give the matter proper attention.

For the sake of convenience, and the better to determine as to the treatment required, Headaches are divided into several classes or kinds, according to the nature of the causes supposed to produce them. Thus we have Headache from plethora, or over-fullness of blood; Headache from a deficiency of blood, or general debility; Headache from Fever and inflammatory action, Rheumatic Headache, Nervous Headache, Sympathetic Headache, Stupid Headache, Chronic Headache, Periodical Headache, and Sick Headache.

## PLETHORIC HEADACHE.

This class of Headaches includes all cases where undue determination of the blood to the brain is the cause. Where there is too much blood in the system, the Headache will be more or less continuous, and there will be a feeling of fullness in the head, the pain mostly dull and heavy; the head will also be preternaturally hot. There will be dizziness after stooping, blowing the fire, for instance, on straining, and such other symptoms as occur in persons predisposed to Apoplexy. Suddenly shaking the head will also aggravate the pain. The fullness in the head, and the pain, are apt to be increased soon after eating a hearty meal.

Where the excess of blood upon the brain is caused, not by general plethora, but by a derangement in the circulation — in other words, a withdrawal of blood from some parts, and a determination of it to the brain — the pain is not so continuous, and not so dull and heavy, but will at times be quite acute. In this kind of Headache, the feet and lower extremities will be cold, or always when the Headache is owing to the fact that the blood does not circulate properly in them. The head will also be unusually hot, and there may be redness or flushed condition of the face and eyes, and perhaps throbbing sensations in the head, especially if the determination of blood and the pain are great.

Treatment.—If the difficulty is produced by too much blood, a treatment calculated to deplete the system must be pursued. A proper course of dieting will be very important. The patient must live on food that will be unexciting, cooling, easily digested, and, if possible, that will tend to keep the bowels open — a vegetable diet, mainly of a laxative nature, such as brown, or "Graham Bread," fruits, and the like. He must avoid rich,

strong food. At the same time an active Hydragogue Cathartic should be taken about twice a week for two or three weeks. One active dose will always give immediate relief in most cases of Headache; but in order to produce any permanent relief, it will be necessary to continue the treatment, both in diet and in medicine, for perhaps several weeks. The idea is to change the condition of the system, to deplete it, and especially to reduce the quantity of the circulating fluid. For these cases, nothing is better than to take a drachm or two of Phosphate of Soda once or twice a week, or as often as may be necessary, to secure a good movement of the bowels daily.

Where the difficulty is simply a determination of blood to the head, with cold feet, etc., the above salts, or something similar, should be given, and the feet and legs bathed in warm water, as warm as can be borne, with ground Mustard, or Cayenne Pepper added, and rubbed well for half an hour, say twice a day, but especially at night, before going to bed. Free exercise should be taken daily, warm woolen stockings worn, and if the feet are still cold, put a little powdered Cayenne in the bottom of the stockings. Also, bathe or wash the whole body morning and evening, rubbing the surface well to get up a healthy action in the skin, which will tend to invite the blood to the surface.

## NERVOUS HEADACHE—STUPID HEADACHE.

THERE is a species of Headache frequently called Stupid Headache, from the fact that it is not acute, not very painful, but yet unpleasant. The person who is subject to this Headache has a continued feeling of dullness and confusion in the head, and often a dimness of sight and deficiency in hearing. The mind seems weak, and the system not capable of continued mental exertion or labor; the memory becomes defective, and, though the person appears and feels stupid, he cannot sleep, but is wakeful and restless at night. There are no very striking symptoms, nothing more marked than a low, dull pain, or uneasy feeling in the head, and a feeling of stupidity and dullness of the mind.

This condition arises from general debility of the nervous system, and a general debility of the entire system. It is directly the opposite of the Plethoric species of Headache, both as to cause and as to symptoms. It is often called Nervous Headache; because it is due to a weakness of the nervous power. This may, in turn, be owing to a weakness or deficiency in the blood, or to general debility of the system. It may be induced and brought on by long and hard study; hence students are, not infrequently, troubled with this species of Stupid, or Dumb Headache. It is also caused by severe and long-continued grief, by trouble, by desponding emotions, and by the mind dwelling on the dark side of subjects. Debilitating and exhausting diseases, as Diarrhœa, immoderate loss of Blood,

and whatever tends to produce debility, either of the whole system or of the brain, may produce this species of Headache.

TREATMENT.— First find out the cause of the difficulty. Is it from long and hard study? Then discard studying and pursue something else; something wherein the body is exercised more, and the mind less. Is it from grief? from melancholy? or from any other emotion of the mind? Overcome or remove that condition or state of the mind by appropriate means — a change of locality, of scenery, a freer mingling in the pleasures of society, cheerful and lively company, and the like. But there is nothing so good as traveling — a change of locality and of surrounding objects..

If caused by nervous debility—wherein there will, of course, be general debility of the system—means must be employed that will be calculated to strengthen and restore the physical system, the general health, and strength of the body. Regular, moderate exercise, in the open air, will be one of the most essential means. Bathing, night and morning, simply by sponging or washing the body all over with a sponge or towel, and rubbing well with the hands, will also be found very advantageous. It is strengthening to the nerves, keeps the skin in a healthy condition, and thus promotes free and equal circulation of the blood. The water used for bathing purposes should be warm or tepid at night, and cold in the morning; the head, however, should always be bathed well with cold water. The surface of the body should be rubbed well with a dry towel after bathing.

At the same time some tonic medicine should be taken, which shall at the same time act as a stimulant to the nervous system. The following is a good preparation: a teaspoonful before each meal of equal parts of Elixir of Calisaya and Elixir of Valerianate of Ammonia.

To control the pain a Migraine tablet or two (procured at any drug-store) may be taken.

Other Tonics, strengthening Bitters, and Restorative Medicines, may be used. Should there be paleness of the skin, showing a deficiency or poverty of the blood, take the following, made into twelve pills or powders; Saccharated Carbonate of Iron, a drachm; Arsenious Acid, a quarter of a grain, taking one three times a day, after meals.

## INFLAMMATORY AND RHEUMATIC HEADACHE.

THERE will always be more or less Headache in cases of Fevers, and inflammatory conditions of parts of the system. This every one knows who has suffered from such diseases. So will there often be Headache in case of Rheumatism of any part of the body; especially if the person is more or less subject to Rheumatism. In a Rheumatic condition of the system, the Headache is generally relieved or absent when the Rheumatism is active, and shows itself in some particular locality; while, when the Rheu-

matism subsides, the Headache will set in again. If there is general Inflammatory Rheumatic inflammation of the joints, there is apt also to be Headache, as in any other case of general fever or inflammation. In all cases of this kind, the way to relieve the Headache is to relieve or remove the cause, or the disease which causes it. It is unnecessary, here, to give directions in regard to Headache during fevers, inflammations, and other leading diseases, as that will be found already done in connection with the treatment of those diseases. Headache is a symptom of such diseases, and means for its palliation (for that is all that can be done) will be found recommended under its appropriate head.

If the person, however, is at all troubled with Rheumatism, whether it be continuous or only at times, you may safely conclude that the Headache proceeds from that cause; in which case you should employ Anti-rheumatic Remedies. Treat the same as a case of Rheumatism (which it in reality is), and at the same time pay particular attention to the circulation: that is, to equalize it. Bathe the feet and legs often in warm water, and rub well, in order to invite the blood to the lower extremities; bathe the head, if in much pain, in cold water; give 5 grains of Salicylate of Soda after each meal, and take the usual diet of Rheumatics.

## SYMPATHETIC HEADACHE

Is THAT species of Headache which results from sympathy, merely, with the affection or diseased condition of some internal organ, as the eyes, the kidneys, the liver, the bowels, or stomach. It may be from inflammatory action, as from inflammation of the liver, stomach, or bowels; or it may be purely sympathetic. In either case, it will be very easy to trace out the cause. Find out where the seat of the complaint is, and make preparations to relieve it. The proper treatment will be found under the head of the particular disease or condition which, from the close sympathy that exists between the affected organ or locality and the brain, induces the Headache. Women, during pregnacy, often suffer from this species of Headache. In such cases, palliation is all that can be expected during the period of gestation. The bowels should be kept in a lax condition, the feet warm, and an equalized circulation of the blood maintained, as much as possible.

## CHRONIC HEADACHE.

THIS means Headache of long standing. It is where the person has suffered so long with it, or where the cause which induced it in the first place was so severe, that it has become organic or constitutional — a fixed condition of the brain and organs implicated. It was probably produced, in the first place, by a severe spell of sickness, in which the head or brain was deeply affected. It may have been Inflammation of the Brain, or its

membranes; or some severe Fever, in the course of which the brain became seriously affected. The membranes very likely have become thickened, or some portion of the organic structure so changed as to become of a fixed, morbid condition. Although the pain may not be very severe, nothing like it was in the first place, yet it probably can never be entirely removed.

The Headache, or pain, in this species, is apt to be confined to one particular locality or part of the head, as upon the top, or at one side, or over one eye, or it may be over both, or in the whole forehead; or it may be confined entirely to the back part of the head. It is a peculiarity of this kind of Headache that it is almost always confined to some one spot of the head; it may be one-half, but it much more frequently affects but a small spot or portion of the head. It is also apt to be periodical — that is, to come and go at regular periods, though it is seldom or ever entirely absent. It is not, therefore, intermittent, but is remittent, being worse or better at regular or irregular periods.

Treatment.— This species of Headache, as may well be imagined, is difficult to cure. Indeed, it can seldom be cured, especially if it has long existed. The most that can be expected is, that it may be partially relieved. You should be careful, however, not to mistake Rheumatic Headache for this species, as in the former there will also be remissions or intermissions. In the Rheumatic species, whenever the Rheumatism attacks some other locality, the pain leaves the head, being transferred; but then you will readily know that it is Rheumatic Headache by the fact that you have Rheumatism in some part of the system at the time.

In Chronic, or, as it may be called, Constitutional Headache, the treatment should be of a general and constitutional character, and various plans and remedies should be tried. Of course the less pressure of blood on the brain the better. The disease or derangement was most likely caused, in the first place, by too great a pressure or determination of blood upon that organ. To equalize the circulation of the blood, therefore, as much as possible, and keep up that equal circulation, will be a consideration of the highest importance. This must be done by keeping the bowels in a soluble or lax condition — that is, free from costiveness. This alone will be found to give relief in most cases.

Laxative, or mildly Cathartic Medicines, such as tablets or pills of Aloin, Belladonna, and Strychnine or Salts, preferably Phosphate of Soda, may be taken one or twice a week, or as often as necessary. The diet, also, should be such as to favor an open condition of the bowels — such as bread made of unbolted Wheat Flour, Mush and Milk, Corn Bread, and Stewed Fruits. If the pain is severe, as it will be at times, a Mustard Plaster, or an irritating Pitch Plaster, might be applied to the back of the neck. If the latter kind of plaster, let it remain several days, or a week or two, so as to cause a running sore. It will do good.

Should there be at times fever, or unusual heat in the head, or that part where the pain is located, apply cold applications, as in other forms of Headache, and be sure to keep the feet warm all the time. Pay some attention to the stomach. It will likely be found that when the pain in the head is the worst, there is a sour state of the stomach, or symptoms of Dyspepsia or Indigestion. If the stomach feels badly, give an Emetic, or a little Alkali, as a teaspoonful of Saleratus, dissolved in a little Water or Milk, or as much Carbonate of Soda, and taken once or twice a day, to destroy the acidity of the stomach.

Keep the bowels regular, the stomach free from acidity, the skin in a healthy condition, the feet warm, the head cool, and an equal circulation of the blood, and you may expect the best results that can be hoped for in this species of Headache.

If the paroxysms of pain should be marked by regular periods, as coming at such an hour every day, every other day, or at longer regular intervals, give, also, tonics — that is, treat as a case of Migraine, a mild form of which these attacks probably are.

In Chronic Headache, where the pain is located in the forehead, or fore part, or top of the head, as well as in some other forms or kinds of Headache, relief may often be obtained by using some of the coal tar products, such as Acetanilid, or Phenacetin, in 5 grain doses. Most of the Headache tablets and powders sold at the drug-stores depend for their beneficial action upon one of these drugs; they are also the chief constituents of common "cold" tablets and pills. In small doses they are usually harmless and relieve pain. In large doses they are dangerous: many serious and some fatal cases of poisoning have resulted from taking too many Headache pills.

## SICK HEADACHE—PERIODICAL HEADACHE.

This is by far the worst species there is, or rather it is the worst and most troublesome complaint which comes under the name of "Headache." It is not, properly speaking, a Headache — that is, the disease is not seated in the head; the pain in the head, like most other cases of Headache, being but symptomatic of some other disease or derangement. Sick Headache unquestionably originates in the stomach and liver, or is owing to a sort of periodical derangement of the functions of those organs.

Sick Headache appears usually at regular periods, generally about every two weeks, or every month. In some cases, however, it comes on at irregular and much longer periods. The leading symptoms are sickness at the stomach, nausea, and sometimes vomiting, flashes of fever, heat in the head and face, and often redness in the face, and severe pain in the head. The pain may be in all parts of the head, but it is often confined to the forehead and temples, or is more severe there than in other parts. Sometimes, how-

ever, there will be severe pain in the back part of the head and base of the brain.

This troublesome complaint affects some persons so severely that they will be "laid up," or confined to their bed, for several days at each attack. It is a very sickening, unpleasant disease — a good deal like Sea-sickness in some respects, though with more pain in the head. The disease affects females much more frequently than males. By some medical writers it is thought to be in some way connected with the periodical sickness of the sex; but we doubt if there is any such connection. Though it is much more common among females, yet men are known to be subject to it, and to have it in as marked, regular, and severe forms as it ever affects women. It also "runs in families" to some extent — not that all the members of a family will have it, but that in some families several members may be subject to it, and it will likely, in such cases, extend from generation to generation. If, for instance, a mother is subject to the disease, one or more of her children, or grandchildren, will be likely to have it.

Some authors suppose the disease to be entirely nervous, and depends upon some peculiar action or condition of the brain; but this, we think, is altogether erroneous. They mistake the effect for the cause. One strong, and to our mind satisfactory, reason why it originates in the stomach and liver, perhaps the liver alone, is the fact that proper treatment directed to those organs, in cleansing the stomach and rousing the action of the liver, invariably relieves the complaint; and such treatment has always been found to be of decided benefit, or that can be relied on in a majority of cases.

It is unnecessary to describe the disease further or more particularly. Those who have had Sick Headache know the symptoms which generally precede the attack, for a day or two, before it becomes fully developed; and they generally, if they are subject to severe attacks, make their calculations to be "laid up" for two or three days, or a week. What is most important, is to know how to cure it, or to render the attack as light as possible, and finally to prevent it altogether.

Treatment.— The most important and certain remedy in Sick Headache, is a good, thorough Emetic. For this purpose, there is nothing better than the common Emetic Powder; that is, equal parts of Ipecac and Powdered Lobelia Seed, about 1 tablespoonful to ½ pint of Hot Water; let stand and "draw" for a few minutes; then give in two or three portions, at intervals of from five to ten minutes.

After the patient has vomited a couple of times pretty thoroughly, a little gruel should be given, and he should be allowed to rest quietly in bed for two or three hours. After which an active Cathartic should be given, such as will rouse up the liver, and remove any obstructions, or undue accumulations of bile, that may exist in that organ or any of its excretory ducts. The following is an excellent preparation, which may be used in all cases

of Liver Complaint, Sick Stomach, Bilious Affections, and wherever a safe and effective Vegetable Cathartic is needed: Take Pulverized Aloes, 60 grains; Castile Soap, Gamboge, Scammony, Podophyllin, and Capsicum, of each, 30 grains; make into 60 pills, adding at the same time about 20 drops of Oil of Peppermint or Cloves. Dose: from three to five pills, as a Cathartic; as simply a Liver pill, to act on that organ, regulate the bowels, and cleanse the system, one pill once or twice a day. In case of Sick Headache, about three pills should be taken; and twelve hours or so afterward, give two or three more. After a prompt and thorough action of the bowels, one pill every evening should be taken for a few days. The above pills can be obtained already made up at any drug-store under the name of Compound Cathartic Pills, or Vegetable Cathartic Pills.

Other auxiliary measures are at the same time to be resorted to, especially if the case is a severe one, and the patient is confined to his room or bed with it. The feet should be well bathed in Warm Lye Water, or Warm Water with Mustard in it; or the water may be made pretty strong with Salt. The feet and legs should be thus soaked for half an hour or so previous to and while taking the Emetic. Applications of Spirits of Camphor, or, if much heat be in the head, of Cold Water. The patient also should be allowed to smell of Camphor, or Hartshorn, Cologne, and the like; such inhalations by the nose will often relieve both the Headache and the distressing sickness at the stomach. It would be well to bathe and wash the patient all over, once or twice during the attack, using Warm Alkaline Water, that is, Warm Water with a small quantity of Salaratus or Salt in it. This removes the oily substance from the pores of the skin, and is beneficial in almost all diseases or conditions of the system.

Sick Headache undoubtedly proceeds, as I have already remarked, from a deranged or unhealthy condition of the stomach and liver. It arises probably from a morbid or unhealthy action of the latter organ. This unhealthy action goes on slowly for two, three, or it may be four weeks, the morbid matter or unhealthy deposit gradually accumulating, or the abnormal condition gradually increasing, until a crisis arrives, the overcharged liver can contain it no longer, and a discharge of bile takes place into the stomach, which produces sickness, attended with a peculiar, severe Headache, and more or less of other unpleasant symptoms. The liver thus becomes purged or unloaded of its unhealthy matter, the system suffers for a few days, then finally reacts, recovers, and goes on again for another period. Hence the importance of Emetics, and medicines to act directly on the liver and bowels. It is the most certain and speedy way to obtain relief. By pursuing this radical plan for a few times, beginning always on the appearance of the first symptoms of an attack, the attack will be lighter each time, until you may succeed finally in breaking up or removing altogether that morbid condition which gives rise to the disease; in short, you may succeed in producing a radical and permanent cure.

Phosphate of Soda, Calomel, and Podophyllin, all have more or less of a direct action upon the liver, and in proper doses any or all of these cathartics may be used to advantage in Headache due to torpid liver. Two grains of Calomel may be taken, or half an ounce of the salts, or an $\frac{1}{8}$ of a grain of the resin of Podophyllin; these are the doses for adults, and for children give less, according to age.

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## NERVOUS WEAKNESS—NERVOUSNESS.

Nervous Weakness, Nervousness, Nervous Prostration, and the like, are terms usually applied to an indefinite affection or condition of nervous irritability and weakness—a mixture of mental and physical disorder, which is usually but the product or result of general weakness. The active countryman, the farmer, the hunter, the common laborer, and those who take much exercise in the open air, do not suffer from this nervous debility and weakness. It is usually those of sedentary habits, who are confined to the house and the office—those who exhaust the brain by too great mental exertion, or the body by idleness and dissipation.

Females are much more liable to nervous disorder and weakness than males; and this, too, aside from or independent of hysterical affections, which also constitute one of the most marked phases of the present complaint. Hysterics are only one of the phases or conditions of Nervous Weakness.

In this nervous disorder there is usually great susceptibility to external influences; while at the same time mental emotions, whether of joy or grief, fancied or real, exert great and marked influence over the body and its functions. The heart palpitates on slight emotions, the hand trembles, and the face flushes under the most trivial excitement. The person exhibits various other symptoms and evidences of great nervousness or weakness of the nervous system, upon very slight causes apparently, such as would not be noticed in a person of strong, sound general health of body and mind. The affection, indeed, is very nearly akin to Hypochondriasis, and should, to a great extent, be treated as such; it is essentially a disorder of weakness, and is relieved by whatever increases, temporarily or permanently, the power of the Nervous System.

Treatment.—Alcoholic Stimulants and Opiates are used to a great extent, by both males and females, for relief in this condition. They undoubtedly give temporary relief; but they should not be relied on, nor indulged in to too great an extent, or they will do more harm than good, and create a habit which will be worse than the disease itself. They should be used with caution, and never continued long at a time. Their relief is only temporary.

Exercise in the open air will be one of the most useful means in overcoming the complaint, and gradually restoring the nervous power. Walking, riding on horseback, and any kind of out-door work which the patient can do, and especially ordinary farm work, will be good. If the patient be a female, she must determine whether it would not be better for her even to engage in out-door exercise, than to suffer for years, and then finally die, long "before her time," from Nervous Weakness and Debility, brought on and continued by effeminate habits, idleness, and the exclusion of sunshine and pure air. The farmers' daughters, who are in the habit of doing a fair share of out-door labor every day, do not often suffer from excessive weakness of the Nervous System, nor from general prostration.

The Shower Bath will also be found of service. Some persons, especially delicate females, cannot stand the shock of the cold Shower Bath; when such is the case, the water can be tempered to suit, gradually using colder each time, until it can be borne. The application also can be graduated, so as not to produce too great a shock. Or the Douche or Pouring Bath can be used, especially down the back, along the spine; for it will very often be found that the spine is more or less affected in this complaint, and may, in reality, be the direct cause or seat of the difficulty. Hence the spine should be carefully and closely examined, by pressing with the thumb or fingers along down from the head to the lower extremity, and if a tender spot is found, a strengthening or Irritating Plaster should be applied, and allowed to remain for a week or two, until a thorough counter-irritation has been produced. This should be continued, according to circumstances.

Attention must be paid to the bowels and the skin. The bowels should be kept regular, by, if necessary, an occasional dose of laxative or mild Cathartic medicines or pills; and the skin kept in proper condition by washing or bathing once or twice a week with warm Lye or Saleratus Water, and then rubbing well with coarse dry towels. If the weather is cold, wear flannel next to the skin.

In addition to all this, some good Tonic should by all means be taken, and continued for a good while, it may be for months. This is a condition of the system which is not to be overcome and cured in a week, or even in a month; it must be done gradually. Pills of Iron, Arsenic, and Strychnia may be obtained at any drug-store, and one of these taken after each meal will often be found of great value in general weakness of the nervous system. The diet should be pleasing and nutritious, using Eggs, Milk, and Beef freely, or a strictly vegetable diet, on the other hand, may be tried.

But remember that out-door exercise, and plenty of it, must be the principal means of cure.

## GIDDINESS—VERTIGO.

VERTIGO, OR GIDDINESS, called also Dizziness, is very often symptomatic of some other disease, as Hysterics, Dyspepsia, congestion or anæmia of the brain, heart disease, foul or sour stomach, and may be a premonitory symptom of Apoplexy. It results from excessive use of alcohol and other intoxicants.

SYMPTOMS.—It consists of what is called a "swimming in the head;" everything seems to the patient to go round; he staggers, and sometimes is in danger of falling.

Very little danger attends the complaint, unless it be caused by too great a fullness of blood in the vessels of the brain. If this be the case, it should be attended to in time, or it may terminate in Apoplexy or Paralysis. When Giddiness arises from some disease, it will disappear by the removal of that disease. In females it often proceeds from difficult or obstructed Menstruation.

TREATMENT.— First ascertain the cause of the difficulty, and then remove it. If it be a mere symptom of some other disease, that should first be removed. If a primary affection, seated in the head, or is from a disordered stomach, a purgative should be given, and repeated occasionally. The Mandrake or Mayapple, especially if the brain be the seat of the complaint, will be the best for this purpose. An occasional Emetic may also be given with advantage, especially if the stomach be out of order. The feet should be bathed frequently, and rubbed well. Equalize the circulation, withdraw the blood from the head to other parts of the body, keep the bowels open, the stomach cleansed, and the difficulty will soon disappear.

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## FAINTING, OR SWOONING.

FAINTING is too common and too well known to need any description. It is produced by various causes; among which may be named great loss of blood, and in some persons the sight of blood; violent passions of the mind; severe pain and suffering; excessive joy; disgusting sights; fright; excessive eating and drinking; offensive odors; impure and confined atmosphere; and intense study. It is also a symptom of other diseases, particularly of the heart and brain. Persons of weak and delicate constitutions are liable to it from very slight causes. If it occur frequently in a person otherwise apparently healthy, and without any known cause, a diseased state of the heart or brain is to be apprehended. All the above conditions cause a lack of blood in the brain, which always occurs in true fainting, as is evidenced by the paleness at the time of an attack.

TREATMENT.— A person who has fainted or swooned should be immediately laid in a horizontal position, the clothes about the chest and neck loosened, and cold water sprinkled freely on the face. If the Fainting has taken place in a tight or crowded room, the patient should be immediately removed to where there is plenty of fresh air. The hands, legs, and arms should be freely rubbed.

Spirits of Ammonia, or the Salt of Hartshorn, should be held to the nose. The Hartshorn, or "smelling-bottle," is a very good thing in such cases; and ladies who are subject to Fainting spells, generally carry it with them.

A teaspoonful or two of Compound Spirits of Lavender, with some Spirits of Hartshorn, is very good, to be taken internally. There should be about four times as much Lavender as Hartshorn, or in about that proportion. But in a majority of cases, pure air and a little cold water in the face, are all that will be required. The head should be made the lowest part of the body, so as to have the aid of gravity in bringing the blood back to the brain.

Persons subject to Fainting should avoid all crowded assemblies, and places where the air is impure or confined. They should also avoid mental excitement, too much fatigue, and tight-lacing.

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## PARALYSIS.

PARALYSIS has its seat in the nervous system, and is characterized by a loss of the power of motion or of feeling in the part affected, and sometimes both. The most usual form of Paralysis is that where one side of the body is affected. It sometimes seizes the lower extremities, or all below the hips. In the former case it is called Hemiplegia; in the latter Paraplegia. When confined to a particular limb, or set of muscles, it is called Partial Paralysis.

SYMPTOMS.—The symptoms of Paralysis are generally palpable enough, and not easily mistaken. It is apt to come on very suddenly, with an immediate loss of sensibility and the power of voluntary motion in the part affected. Sometimes, however, it is preceded by a numbness or coldness, and perhaps slight convulsive twitchings, and other symptoms similar to those which precede Apoplexy.

Sometimes the disease will go off spontaneously, with a Diarrhœa, or Fever. A feeling of returning warmth, and slight pricking pain in the part, with returning sensation and power of motion, may be regarded as favorable symptoms.

CAUSES.—Paralysis may be occasioned by anything that prevents the flow of the nervous stimuli from the brain into the organs of motion, as tumors pressing on the spinal cord, or nerve; pressure from dislocations and frac-

tures of bones; and by disease or wounds of the nerves. The long continued exposure to the influence of certain sedative agents, as the handling of white lead, exposure to the fumes of metals and minerals, will also produce Paralysis. It is also symptomatic of other diseases, as Worms, Scrofula, Syphilis, Apoplexy, or may follow them as a result. Most Hemiplegias, *i. e.*, Paralysis of one side, result from Apoplexy; which is a rupturing of a blood-vessel supplying the brain; the extravasated blood causes the Paralysis.

TREATMENT.—It is not often that we can do much for the Hemiplegic or Paraplegic form of the disease, if it is of long standing, especially where both motion and sensation are gone. Yet in the early stage it may often be cured by proper treatment.

At the commencement, if the attack has been sudden and violent, pursue the same course as directed in Apoplexy.

There will probably be spasmodic symptoms, violent twitching or contortions of the muscles, perhaps of the face. For this and to allay spasms and pain, give Hyoscine Hydrobromate in $\frac{1}{100}$ grain doses by means of the hypodermic needle.

1st. Evacuate the bowels. It will generally be necessary to make use of injections, for the bowels are usually much constipated, and sometimes the lower portion of the body is so paralyzed or torpid that purgatives will not act upon the bowels. It is not best to wait for a purgative to act, for it may be that the Constipation of the Bowels is the principal cause of the difficulty. A dose of some active purgative may be given, such as Calomel, or Senna and Salts, and then give the following by injection: An ounce of Glycerine in a pint of Warm Water, to which an ounce of Salts may be added if necessary. This will excite an action in the bowels and induce evacuation; if necessary repeat.

2d. Purgatives must be given every two or three days, such as Calomel; or the Podophyllin and Leptandrin may be used. These last two are concentrated preparations—the first made from the Mandrake or Mayapple Root (Podophyllum), and the other from the "Indian Physic," or Black Root (Leptandria), and may be found in most drug-stores. From one to three grains of each, combined, will be a dose for a grown person. They are both valuable remedies in many diseases.

3d. The patient should also take the following Nervous Pills: Extract Hyosciamus, 40 grains; Extract Aconite, 20 grains; Macrotin, 20 grains; make into 20 pills, and let him take one every night and morning. The Macrotin is also one of the new concentrated remedies, made from the Rattle Root or Black Cohosh (Macrotys), and may always be found along with the Podophyllin and Leptandrin.

4th. Some good Tonic bitters are also advisable, such as the following: Take an ounce each, of Compound Tincture of Gentian, Elixir Calisaya, and Tincture of Valerian, three drachms of Tincture of Nux Vomica;

add enough Water to make up four ounces altogether, and take a teaspoonful before each meal.

The extremities and parts affected, should be sponged once or twice a day with Cold Water (to which a drachm of Salt has been added to each pint), and rubbed well. Attend well to the skin and general system. Any slight attack of Paralysis will yield readily to the foregoing treatment, unless the patient be very old and feeble.

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## ST. VITUS' DANCE—CHOREA.

This affection has its seat in the nervous system, and consists in convulsive and involuntary motions of one or more of the limbs. It sometimes affects one side of the face.

The complaint is chiefly incident to young persons, occurring generally between the ages of seven and twenty-one. Girls are more subject to it than boys.

Symptoms.—Chorea seldom comes on suddenly. It is generally preceded by symptoms, varying in duration from a few days to several months —such as coldness of the feet and limbs, a tingling sensation in the parts likely to be affected, heaviness in the extremities, fullness in the head, obstinate constipation of the bowels, difficulty of swallowing, a disposition to gloom, or excessive cheerfulness, and sometimes a remarkable proneness to mischievous conduct.

After a while, irregular muscular twitchings, or spasmodic contractions, are observed in the face, or in one of the extremities. One of the legs will be affected with a kind of lameness, and the patient drags it in an odd and ridiculous manner. Or he cannot hold his arm still, but is constantly throwing it about. When he undertakes to carry food or drink to his mouth he makes numerous singular gesticulations, perhaps, before he can accomplish it. The head sometimes partakes of the same convulsive action.

In severer cases the patient seems to have lost nearly all command over the voluntary muscles. When he attempts to walk, he usually hobbles along in an irregular manner. Sometimes he can neither walk, stand, nor sit still. The hands and arms are often in continual motion, jerking and flying about in every direction. The muscular contractions of the face are sometimes extremely severe and ludicrous, giving a continually varying expression to the countenance.

In violent cases, swallowing is sometimes impeded, the respiration anxious and irregular, the voice altered, and the power of speech very imperfect. In fine, the muscular system seems to be in a state of revolt, bidding defiance to the authority and commands of the will. It is truly a singular affection!

CAUSES.— This disease may be occasioned by various irritating causes, such as teething, worms, or acrid matter in the bowels. It also, and perhaps more frequently, arises from violent affections of the mind, as horror, fright, fear, anger, disappointed love, and religious enthusiasm. Suppression of habitual discharges, especially the Menses, may produce it, and in many cases it arises from debility and extreme irritability of the nervous system. Too constant application of a child to his studies, with lack of exercise, is a common cause. It is also said to take place from sympathy, at seeing others affected by the disease.

Chorea, or St. Vitus' Dance, is not a very dangerous disease, as it seldom proves fatal. It is not, however, entirely free from danger, as, if continued long, it may run into Epilepsy, and in this way prove fatal, or render the patient miserable for life. It is also apt to injure the mind, if protracted a great while.

TREATMENT.— The indications of cure are, first remove the exciting cause, and then strengthen the nervous system.

Very often the stomach is in a deranged and irritable state. In such cases give an emetic. It should be composed of equal parts of Lobelia and Ipecac, given with some warm Teas. In a few hours after this give a purgative, which should be repeated once in three or four days. Repeat in six hours if it does not operate. When the subject is a young girl, about the age of puberty, or you have reason to suspect that the development of the menstrual function is concerned, the Podophyllin, or Mayapple Root, in some form, should constitute the principal part of the purgative; and it might be repeated every other day, for a few times. Other means should be used calculated to aid in bringing on the Menstrual Discharge—such as frequent bathing of the feet and legs in warm water; sitting over steam.

As a nervine and specific in St. Vitus' Dance, perhaps the Scullcap (*Scutelaria Lateriaflora*) is the best. It is an herb that can generally be obtained at Botanic drug-stores. An infusion or tea is to be made of this, of which let the patient drink from half to a pint daily. It may be drank warm or cold.

If the child is anæmic, a pill made of the following is excellent: Saccharated Carbonate of Iron, 1 drachm; Arsenious Acid, $\frac{1}{8}$ of a grain, divided into twelve powders, or made into twelve pills, and take one after each meal. This may be repeated indefinitely.

If the child has worked too hard at school, he should be taken from it and given a rest, and made to take plenty of out-of-door exercise and a nourishing diet, drinking large quantities of milk.

If the case is a very bad one, the following Pills should also be given: Take Extract of Hyosciamus, 40 grains; Gum Camphor, 40 grains; Musk, 20 grains. Make into twenty Pills, and give one night and morning.

The Sponge Bath, of Cold Water and Salt, should also be employed, with plenty of friction. Also an occasional Warm Bath at night.

## EPILEPSY—FALLING SICKNESS.

Epilepsy is a disease characterized by paroxysmal attacks of convulsions, with temporary loss of sensibility and consciousness, followed usually with Coma or Stupor. It is one of the most distressing diseases to which humanity is subject.

The disease comes on by sudden paroxysms, or fits, which continue for a few minutes or half an hour, then leave the patient in his usual state, except that he is more or less debilitated and drowsy. This disease is most common among children and young persons, and boys seem to be more subject to it than girls. Its attacks are generally periodical, often monthly, or every new or full moon. Sometimes it occurs much more frequently, and again not so often as once a month. The disease is often hereditary, several persons of the same family being subject to it, extending down through several generations. Epileptics should never be allowed to marry. They should have some steady occupation, in which they will be perfectly safe during an attack. They should always be kindly but firmly treated.

Symptoms.—The attack usually comes on suddenly and the patient falls to the ground—hence the name of Falling Sickness. Where the disease has become seated and habitual, the patient sometimes experiences certain warnings of the attack, such as giddiness, dimness of sight, confusion of mind, loud ringing in the ears, sparks and flashes before the eyes, trembling in the limbs, anxiety, drowsiness, starting during sleep, sullen gloominess, irritable temper, and reverie. Some grow timid and cowardly; others spiteful, quarrelsome, or mischievous. But these premonitory symptoms usually last but a short time, seldom more than a few seconds.

Some persons are warned of an attack by seeing specters just before it comes on. Others experience what is called Aura Epileptica—a certain peculiar sensation, which I believe occurs in no other disease. It is a feeling of chilliness which commences in the feet, or legs, and extends gradually up until it reaches the head, when the patient suddenly becomes insensible and falls, or has the fit. In many instances, Epilepsy occurs invariably at night, during sleep.

When the patient is attacked, he immediately becomes insensible and more or less violently convulsed. The eyes roll about; the lips, eyelids, and muscles of the face are greatly distorted and convulsed; the patient gnashes his teeth and foams at the mouth; sometimes the teeth are firmly pressed together and the jaws fixed. The face is sometimes pale, but more commonly of a livid, purple color, with a congested state of the veins of the head and neck. Sooner or later these spasmodic symptoms abate, generally gradually, and on coming to himself, the patient feels languid and exhausted, and retains not the slightest recollection of what has passed during the fit.

Causes.—In some persons a hereditary predisposition to the disease exists. Repeated attacks render the patient still more liable to subsequent attacks. It often comes on about the period of puberty, owing, no doubt, to the important changes which take place in the system at that time.

In some cases the disease is what is called Idiopathic, that is, owing to malformations of the skull, depressed bones, or a spongy growth upon the internal surface of the cranium; organic derangement of the brain; congestion or effusion of blood upon the brain.

In others it is symptomatic, owing to intestinal irritation, as from Worms, and other causes; Teething; suppression or retention of the Menses; poisons received into the system. Onanism, or Masturbation, is also a fruitful cause of the disease. Convulsions in infancy, if not properly treated, result in Epilepsy.

Where a predisposition to the disease exists, an attack may be brought on by violent affections of the mind, or of the nervous system; as sudden fright, fits of passion, and the like. Blows, wounds, fractures and injuries of the head may also cause the disease. Especially, depressed fractures, which have not been properly treated, *i. e.*, the depressed part of the bone not elevated to its natural position, producing a constant pressure upon the brain, which is a sufficient source of irritation to produce Epilepsy.

Treatment.—Very little can or need be done, during the paroxysm, or while the fit is on, except to prevent the patient as far as possible from injuring himself. Everything should be removed from about the neck.

A great many remedies have, from time to time, been proposed for this disease, and relied on for a time as specifics; but the truth is they sometimes all fail. Where the disease is dependent on malformations of the skull, or organic derangement of the brain, it is very seldom cured, especially if the patient be past the age of puberty.

Where the disease is but symptomatic, depending upon some other derangement of the system, and not directly connected with the brain, it can generally be cured, by removing the cause, with proper attention afterward to the general system.

A general course of treatment, with particular reference also to the cause of the complaint, where it can be known, will be the most judicious.

1st. An occasional Cathartic or Purgative will be proper under any circumstances. And there is none better than the Podophyllum or Mayapple, in some form or other. It is an excellent Anthelmintic, or Worm medicine, as well as a good Emmenagogue; and is also good in all congestions and effusions on the brain, whether of blood or serum. The bowels are to be kept loose, and for this purpose the powdered root of the Mayapple may be given; or it may be reduced to an extract and formed into pills, giving two or three a day, or enough to keep the bowels open; or pills may be made of Extract Hyosciamus and Podophyllin, and given in the same way; 2 grains of the former and 1 of the latter to a pill, one or two taken daily.

2d. We must admit that drugs are not producing most gratifying results in Epilepsy. The Bromides are the only ones which are at all effective. A drachm of Sodium Bromide may be given to an adult each day; it is best given after meals in Milk or in Soda Water. Such a dose should be given in advance of an expected attack, also.

3d. Anti-spasmodics are indispensable. Such as are both anti-spasmodic and narcotic are preferable. The Scullcap, Stramonium and Hyosciamus, are all good. Also: Take of the Tinture of Stramonium, and Hyosciamus equal parts, mix, and give from 10 to 30 drops three times a day. Commence with 10 drops, and increase 1 drop each dose till you reach 30, or till a slight dizziness is produced, if it takes 40 or 50 drops, and then continue at that.

4th. TONICS.—Great benefit is to be derived in many cases from the use of tonics. There is generally weakness and debility of the whole system, and then the disease sometimes assumes the form of Masked Ague. In such cases tonics are indispensable. For this purpose Quinine may be used, made into pills with Extract Hyosciamus. Let there be from 1 to 2 grains of Quinine to the pill, and give from 3 to 6 a day.

The State of Ohio has a colony or farm where these unfortunate people are gathered together and cared for; large sums of money are also being spent with the object of learning as much about the disease as possible, in the hope that a specific remedy may be found. It is already claimed there that Rickets is a common cause, so that the prevention of Rickets will materially reduce the number of sufferers from Epilepsy.

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## CATALEPSY.

CATALEPSY is a very remarkable disease. It consists in a temporary suspension of consciousness, sensibility, and volition. There is no muscular contraction, rigidity, or spasm. The respiration and circulation continue the same. It seems to be a sort of Trance or Ecstasy; and may last a few minutes, or it may continue for hours, or even several days.

The attack generally comes on suddenly, without any warning. The patient falls, or becomes perfectly helpless and unconscious, and every part of the body remains in precisely the position it was at the moment of the seizure. When the patient recovers, he has no recollection of what has occurred, and will commence acting or talking at the point he left off when attacked, the same as if nothing had happened. The period occupied by the attack is a perfect blank in the patient's existence; he does not even recollect that he has been affected.

In most cases, especially if the attack has been of short duration, the patient suffers no inconvenience afterward. Sometimes, however, in pro-

tracted cases, there will be some feeling of weight and pain in the head, lassitude, and dullness of mind, after the attack has passed off.

Catalepsy is sometimes complicated with other affections, or may terminate in them, as Chorea, Somnambulism, Hysteria, and even Epilepsy. As a general thing, however, it is not a dangerous disease,

Causes.—Catalepsy may be induced by various causes. It may arise from intense passion; from long and hard study; from a morbid state of the alimentary canal; worms; plethory, and suppression of accustomed evacuations. Persons of a nervous temperament are said to be most subject to it. It occurs most frequently in females, and very often about the age of puberty. Suppression or irregularities of the Menstrual Discharge is one of the most common causes of the disease.

Treatment.—During the paroxysm, Cold Water may be thrown upon the face and body of the patient.

As soon as the patient can swallow, a brisk purgative should be given, especially where there is reason to believe that there are irritating matters in the bowels.

The after-treatment should be upon general principles, with a view also to the exciting cause, the constitution, condition, and temperament of the patient. All the secretions and excretions must be regulated, and the stomach, bowels, and skin, kept in a healthy condition. Medicines of a restorative, nervine, and sometimes of an anti-spasmodic character, should be given. Sometimes Emmenagogues, or medicines that will promote the Menses must be employed, such as Iron and Arsenic, which are among the best remedies for suppressed or retained Menses known. An occasional physic of the Mayapple Root should also be given, in such cases, and the feet, legs, and lower part of the body frequently bathed in Warm Water. Moderate diet and free exercise should be observed.

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## HYSTERICS—HYSTERIA.

Hysteria, or Hysterics, as it is commonly called, is an affection peculiar to females, and is characterized by a sense of suffocation, stupor, rumbling noise in the bowels, followed by the sensation of a ball rising from the stomach to the throat, sometimes convulsions, laughing or crying without any apparent cause, interrupted sleep, sighing, and more or less flatulence.

Symptoms.—Attacks of Hysteria are sometimes preceded by low spirits, anxiety of mind, a flow of tears, difficult breathing, palpitation of the heart, and a pain is felt in the left side of the stomach, which advances upward into the throat, as though it was caused by a ball. Next the patient feels like suffocating, grows faint, followed by stupor, and perhaps insensibility.

The body and limbs may be more or less agitated; there may be alternate fits of laughing, crying, and screaming, wild and incoherent expressions, followed by a temporary delirium. The spasms at length go off, followed by belchings of wind, sighing and sobbing, and the patient returns to her usual state of health, with little or no recollection of what took place during the fit — feeling, however, more or less pain in the head and soreness over the body. Hysteric fits are seldom attended with danger, and the complaint is never fatal, unless it runs into Epilepsy or Mania.

Causes.— This disorder usually arises from the operation of certain passions upon a feeble constitution. Females, from puberty to the age of thirty-five, are most subject to it. It chiefly affects those of a sanguine temperament, relaxed muscular habit, and great nervous sensibility. It is also more likely to occur to those in whom the Menstrual Discharge is stopped too suddenly, or habitually obstructed.

Treatment.— Not much is necessary to be done during the paroxysm, or fit. The patient's dress should be loosened, so as to allow of free circulation and respiration. Cold water should be sprinkled, or dashed over the face, the body placed in a recumbent position, the head elevated, and free air admitted. The temples, abdomen, and extremities may be rubbed. Do not confine the patient to the bed. Allow her as much latitude and liberty of motion as possible. It may be well to give by means of the hypodermic needle a twentieth of a grain of Apomorphine; this may cause vomiting and will at least produce intense nausea, and will terminate the attack.

As soon as the patient is quiet enough, or has sufficiently recovered, the feet and legs should be bathed in warm water, and given an Emetic of Lobelia, or Lobelia and Ipecac. The object should be to equalize the circulation and allay the nervous excitement. An emetic will remove the phlegm and mucus which have collected in the stomach and throat, while it also throws the blood to the surface and extremities, and makes an impression upon the brain and nervous system.

After the paroxysms are over, the patient should take a mild purgative to cleanse the bowels. If we wish to effect a permanent cure, the bowels must be kept in an open and healthy state. A pill composed of Aloin, Belladonna, and Strychnia may be taken every night, or every other night, for this purpose; or any good Vegetable Pill that will act gently on the bowels.

Asafetida is a celebrated remedy in this complaint. Women generally have an aversion to it on that account. It is a good agent, however, and a pill of it, about the size of a small pea, may be taken once or twice a day. Tincture of Valerian is also very useful in this strange condition.

If the patient is feeble and debilitated, some restorative medicine will be necessary. A Bitter Tonic, or Wine, with a raw egg broken into it, may be taken each day to advantage. The patient should be treated kindly.

Nothing harsh should be said to her, calculated to arouse the passions or excite the mind. She should exercise often in the open air, never overload the stomach, and use a light, nutritious, but easily digested diet.

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## MELANCHOLY AND HYPOCHONDRIA.

These diseases are so nearly allied that it is often difficult, if not impossible, to draw the line of distinction between them. As the treatment of each is substantially the same, to be varied only according to circumstances and degree of intensity of the affection, I have thought it best to speak of them together, as but different forms of the same disease.

Melancholy is in reality the incipient stage, or a mild degree of insanity or mental derangement, while it is also the highest degree of Hypochondriasis. Each passes gradually into the other, and they all are liable to terminate at last in complete alienation of the mind. Melancholy is purely a mental disease, that is, a disease of the mind, and may or may not be connected with other complaints. The patient shuns society, and seeks to be alone; is low-spirited, fretful, suspicious, and inquisitive; has a distaste for everything, and everything goes wrong with him; while the mind is apt to dwell upon some single circumstance, calamity, or misfortune, that which is generally the cause or supposed cause of all his troubles. Indeed, the disease can often be traced to some sudden misfortune as the cause, such as the death of a friend, or member of the family, disappointed affection, matrimonial difficulty, sudden financial losses, and the like. Some persons seem always to want more room, or more air, and are constantly wanting the windows opened, or prefer to be out of doors, seeming to dread confinement; others are constantly apprehensive of some calamity, or in fear of being taken up for some dreadful crime, or that they have committed some unpardonable sin. So tormenting are these imaginary fears sometimes, that the unfortunate sufferer seeks every opportunity to end his troubles by self-destruction, or suicide. There may be physical symptoms connected with those of the mind, such as palpitations of the heart, difficult breathing, pallid and haggard countenance, costiveness, suppression of urine, deep sighing, frequent weeping without any cause, and the like.

Hypochondria, on the contrary, is always more or less a disease of the general nervous system, and is often closely connected with Dyspepsia, and derangement of the Liver. Persons of a melancholic temperament are most liable to the disease, especially if of a sedentary habit of life. There is usually great depression of spirits, accompanied with absurd and ridiculous fancies and apprehensions. As in Melancholy, the mind is greatly disturbed, and the person is troubled often with imaginary evils, suspicions, and fear of death from some cause or other. He also believes himself laboring under some disease, or complication of diseases, and not

infrequently has the most ridiculous fancies in regard to the matter. He is also troubled more or less with Dyspeptic symptoms, as sour stomach, belching of acids and corrosive matter, vomiting of viscid or tough phlegm, and coldness of the skin; sometimes a sort of spasmodic constriction of the throat; pains under the ribs of the left side; palpitations of the heart; wakefulness, and generally costiveness of the bowels; timidity, seriousness, and sad gloomy forebodings. It would be impossible, however, to enumerate all the symptoms, even of one unfortunate hypochondriac; while with different persons they vary, according to the difference in temperament and ideas, to an almost endless extent. The great leading characteristics are imaginary diseases of some sort or other, fear of impending evils, and a desire to be constantly taking medicine!

This peculiar condition may be brought on by long and serious study, protracted grief, obstruction and inactivity of the liver, intemperance, high living, so as to induce Dyspepsia and derangement of the function of digestion, and by whatever will derange or impair the nervous system. The disease, however distressing to the patient, and troublesome to the physician, is not often attended with any dangerous consequences.

TREATMENT.— The cure in both these diseases depends much less upon medicine than on the judicious management of the mind, which requires the utmost care and address, as the patients are generally capricious and irritable in the extreme ; while the mind also is the seat of the main difficulty. The mind must be diverted from that train of gloomy subjects and apprehensions on which it has been wont to dwell so long, and turned to other objects, new and interesting. The patient should be surrounded with cheerful company as much as possible, agreeable amusements, interesting scenery, and, where practicable, should travel, visit gay and fashionable places, as well as wild and romantic ; take plenty of exercise, especially riding on horseback ; and whatever will be calculated to engage the mind with pleasing and interesting objects. In order to gain the confidence of the patient, and flatter his hopes of a cure, his complaints, though they are but imaginary, should be attended to as if real, and with the greatest care. His medicines should be changed from time to time, as often as he expresses disappointment in their effects. He should be kept taking medicine of some sort or other, though often, it may be, of an innocent character, as long as he wants it, and every wish of this kind should be, as far as possible, if not injurious, gratified. In many cases medicine will be necessary, such as Tonics and Stimulants ; bathing daily should be insisted upon, the surface being well rubbed while drying. The diet should be carefully regulated according to circumstances, and the particular condition of the patient. In general, light animal food will be the best. If there are Dyspeptic symptoms, and there generally are, such vegetables and fruits as easily generate acidity, and flatulency in the stomach, should be avoided. Green Tea and Coffee should be avoided. A good article of Black Tea, not very strong, may be used ; also Chocolate and Cocoa, and

a little good Claret or Madeira Wine, and occasionally a little good Brandy, but not so as to acquire a habit for them. Opium and Narcotics of all kinds are to be avoided. If the patient has become habituated to their use, he must gradually be weaned from it, or you need not hope for a cure. Sea bathing is good; but if not that, then the ordinary Sponge Bath, or Shower Bath, every morning, should be one of the essential parts of the treatment, and will be found of the greatest benefit in all Nervous and Hypochondriac cases.

In the commencement of the treatment it may often be well to clear the stomach with an Emetic, especially where there appears to be an accumulation or tendency to viscid phlegm or sour acrid matter. Purgatives will also be necessary occasionally. Where there is a tendency to Sour Stomach and Dyspeptic symptoms, Alkalies should be used in moderate quantities taken after meals; if taken just before eating they increase the acidity. A little Saleratus, or Super-carbonate of Soda, is good; also Magnesia, and Prepared Chalk; about 10 grains of Rhubarb, with about a drachm (or tablespoonful) of Magnesia, taken once a day, will be found useful, both as a laxative and to correct the acidity of the stomach.

Some good Tonic is to be taken two or three times a day; with daily bathing, free exercise, alkalies sufficient to counteract the acidity of the stomach, when required, with occasionally some changes and additional remedies of a harmless character to suit the whims and caprices of the patient, will be sufficient, generally, as the medical part of the treatment. The balance of the treatment, and often the main part, will consist, as I have already stated, in the proper and judicious management of the mind, by engaging it upon varied objects of amusement, pleasure, and interest.

From time to time the subject of Insanity has been touched upon in the foregoing; advance in our knowledge of mental diseases is slower than along other lines, and a great step forward is the recognition of the fact that Insanity is a disease which is often amenable to treatment. Another promising step is the gradual obliteration of the terms "Insane Asylum" and "Mad House," two extremely obnoxious terms, which are gradually giving way to the better and more expressive term Hospital or Hospital for the Insane.

To go into the subject of Insanity extensively is beyond the limits of a work of this kind. Insane people or people with a taint of Insanity should not be allowed to marry, for there is a great tendency simply to propagate their kind. Transient Insanity is often caused by pregnancy, and by acute fevers; but complete recovery results. Over-work, worry, severe mental strains, excesses of all kinds, particularly alcoholic and sexual, all tend to produce Insanity, especially in people with tendencies inherited in that direction. Remember, that many cases of Insanity are nowadays perfectly curable, if properly treated, and as a rule proper treatment can only be secured in Hospitals for the Insane.

# SECTION VIII.

## DISEASES OF WOMEN.

### INTRODUCTION.

No other affection can be compared with the love of a devoted wife; her aim will ever be to have joy, peace and happiness pervade her home. When the day, with its cares and duties, its burdens and trials, is past, how sweet to have some little quiet spot, to which we can flee, and find a balm for all our cares and troubles; to have, amid the turmoil and bustle of life, a dear wife, to whom we can reveal our cares, and thereby obtain the relief that our weary minds so much need! Oh! the rapture that words can not express, the joy that language can not define, that is found within the hallowed influence of home! Sympathy, devotion, peace, are there found in the affection and embrace of a devoted, earnest, and kind wife. If there is one moral feeling free from the impurities of earthly frailty, that tells us in its slightest breathings of its celestial origin, it is that of woman's love—the first, the fondest, and most lasting cord with which affection can bind the heart of man! The devoted love of woman is not a feeling of yesterday or to-day—it is, from the beginning, the same and unchangeable—it owes not its being to this world, but is heavenly in its glow; enduring while one pulse of life animates the breast that fosters it; and if there be any thing of mortality that survives the grave, surely this best and noblest passion will never perish. Oh! it is a pure and holy emanation of Heaven's mercy, implanted in the heart of woman for the dearest and wisest purposes, to be the truest and most faithful friend of man through life's weary pilgrimage. She is the guardian angel, when pain and sickness come. It is no selfish passion, depending for its permanency upon reciprocal advantages; but, in its sincerity, it casteth out itself, and centers only in the happiness of its object. When the welfare of that object is at stake, it putteth away fear, and knoweth not weariness; amidst conflicting hopes, fears, and anxieties, her bosom is the balmy pillow upon which the weary head may rest. When struggling in the wide ocean of a tempestuous world, what eye gazes on our adventurous voyage with

half the fond eagerness of woman: amid the sad, yet not unpleasant uprising of hopes and fears, how deep the anxieties of that faithful heart!

It is not Prosperity, with her winning smiles, that tries the purity and fervor of woman's love; it is the dark and dreary round of adversity, amid the cold frowns of an unfeeling world; in poverty and despair, in sickness and sorrow, that it shines with a brightness beyond mortality, and, stifling the secret agonies of its own bosom, strives to pour balm and consolation on the wounded sufferer. The cup of misery, filled as it is to overflowing, serves but to bind the two still more firmly and dearly to each other, as the storms of winter but bid the sheltering ivy twine itself more closely round the withered oak.

What great injustice is often done to women, and how little known—little cared for—are many of the sufferings and trials which circumstances and disease inflict upon them through a life of domestic toil, amid man's ignorance and ingratitude! It is impossible to form a correct opinion of the mental and physical suffering frequently endured from her sexual condition, caused by her monthly periods, which it has pleased her Heavenly Father to attach to woman—the mother of the world—the one who, in soft endearments of love, brings to us a vision of Heaven. Although the rose of Purity was stained by the polluting voice of the serpent, yet it was a voice of Mercy that exclaimed, "It is not good for man to be alone," bidding him seek for a pearl of great price—woman's love—to cheer his path through a world of clouds and storms, until at last, when the decaying sparks of life shall feebly glimmer in this earthly tabernacle, man looks forward to that blessed hope beyond the grave, of meeting again the dear mother of his children, the companion and participant of all his earthly toils, "where they shall go out no more forever." Were it not for woman, every man would be left to battle with attacks of illness, as he could. No kind and gentle voice would be raised to cheer him in the hours of affliction and sorrow; no friendly hand put forth in offices of kindness; no midnight watcher to nurse and soothe him in sickness; life would be a cheerless blank, and Hope's sweet syren voice be heard no more. 'Tis woman's love which gives exercise to the noblest charities of our nature. When we reflect how many of the cares of a family devolve upon her—her trials, sufferings, and misfortunes—we can not but admire the fortitude, the courage, the devotedness, and heroic virtues of woman. How gentle and welcome are the tones of a woman's voice! They come to a wounded spirit like the summer breeze over a sick man's brow. Her presence can call forth every cheerful and happy thought, and banish sadness and solitude from every wounded heart. Such is the wife of his bosom, the chosen companion, the voluntary

sharer of his prosperity and misfortunes, the mother of his children—she who awaits the home-coming of one in whose presence alone her eye can brighten, and sadness and solitude be felt no more.

The affections of others may be founded upon Passion, and may wither away to nothing as time travels down to oblivion—man's friendships may decay, and youthful loves be superseded by cold indifference; but with woman one feeling predominates to the latest breathings of existence—knowing no shadow, seeing no blight—the pure, devoted love of a faithful wife and mother. The chains of friendship may be joined together by years of long-tried experience, and the ties of natural love be tested by the strong gales of adversity; yet, when contrasted with that self-evident, all-enduring emotion of a mother's love, they, with all other mortal affections, shrink into comparative insignificance before the fervent devotion of this imperishable sentiment. Who that has seen an anxious mother watching over the cradle of her sick child, marking with most intense interest the faintest change of its countenance—who, I ask, that has seen the fluctuating expression of that mother's sleepless eye, can hesitate in declaring that the emotion which prompts her actions, has no parallel in the bosoms of mankind? Nights of watchfulness, days of unwearied fatigue, and a lifetime of numberless deprivations, will all be patiently borne by a mother. Oh! that love can not be less than a relic of paradise—a pure and hallowed perception in the dark days of misfortune. When all consolations have sunk back into chaos—when our youthful friends and school companions have forsaken us—when shame and poverty have descended heavily and witheringly upon our names and fortunes—and even when a father's voice has exclaimed, "Away! I know you not"—then it is that a dear mother's love, like an imperishable sun, can not go out; its nature is coequal with her life, and one is extinguished only with the other. She will say, "Thou art my child; and though the hard-hearted world spurn thee; though thou art friendless and covered with shame, yet thy dear mother can not forsake thee!" In a mother's love there is no insincerity; there are no modulations by fortune; but it lives and is nourished as intensely in the humble cottage as in the palace of kings. Its residence is in the center of her heart, whence it flows through every essence of feeling, quickening with its blessed influence the slightest thoughts and actions. Then how can man repay all the faithful tenderness of woman's devoted affection? The fickleness of woman is frequently the result of the carelessness of man; for even in her most excitable moments—for there is no perfection—she can be easily subdued by kindness; and it is the duty of man to reflect, and make due allowance for the feelings of woman, in consideration of the multiplicity of diseases which

are entailed upon her by Nature, and which affect her nervous system to a very great extent. Remember, then the words of our blessed Saviour, "Neither do I condemn thee; go, and sin no more." Rejoice, then, Oh! woman, that thy soul is trained by trials and afflictions; as for this end wast thou created, that through submission and weakness the goodness of God might be made manifest to man in Him who said, "Come unto me all ye ends of the earth and be saved, without money and without price."

Not she with trait'rous kiss her Saviour stung;
Not she denied him with unholy tongue;
She, when apostles shrank, could danger brave,
Last at the cross and earliest at the grave.

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# MIDWIFERY.

## LABOR, OR CHILDBIRTH.

At the end of nine months from the time of conception, the natural period of Pregnancy is accomplished. Some women are a day or two earlier, others a day or two later; but they usually have their child in forty weeks from the time of conception. When a woman is about to be confined, or approaching this period, it is not unusual for her to be troubled with irregular pains for several days previous to her labor; these are called False Pains, and are usually most troublesome during the night. They do not bear down like real Labor Pains, but are sharp, last for a few moments and then pass off. In real labor, there is a discharge from the vagina. When the pains come on at regular intervals, or gradually increase in severity, and are attended with a bearing down sensation, a looseness of the bowels, frequent inclination to make water, and a slight discharge, or moisture of the organs of generation, it will be presumable that true labor has begun, however slow or feeble it may be at the commencement; the discharge, which is called a "show," is often colored, and sometimes there is an appearance of fresh blood. Should the case prove tedious, the pains not strong and irregular, then small doses of Quinine may be given; this will often be followed by a good effect, and the pains will become more regular. If the bowels are costive, a dose of Castor Oil, or an injection of Salt and Water, will produce an operation, relieve the lower bowels, and advance the process of the labor; this ought never to be neglected when the bowels are not open, or costive. Drinking freely of Cold Water often increases the pains, and may be used with perfect safety.

As soon as labor commences, the belly sinks, the dress becomes loose, and there seems to be a descent of the womb into the bottom of the belly;

the motions and weight of the child are felt to be lower than formerly, and the head of the fœtus, or child, falls down to the orifice of the womb and presses upon it. The physical causes that determine the exit of the fœtus, or child, are the contraction of the uterus and that of the abdominal muscles. By their force the mucus secretion takes place; this lubricates the parts, and the mouth of the womb gradually undergoes dilatation, or opening, increasing at each bearing down. As the process of labor advances, the finger, directed into the vagina, will find a considerable tumor; this contains the fœtus; presenting at the mouth of the womb or uterus the opening or mouth of the womb gradually dilates and enlarges as labor progresses, and finally it becomes large enough for the head of the baby to pass; the pains now gradually increase, the pulse becomes stronger and more powerful, the face is flushed, perspiration flows in abundance, and the whole body is in extreme agitation. The process still goes on; the pains are now more frequent, stronger and lasting; presently a strong pain comes on, and suddenly the water, medically called *Liquor Amnii*, gushes out, wetting the bed. There is now a longer interval between the pains, and on the midwife introducing her finger, she will discover a great change — a large, round, hard substance is felt, which she at once knows to be the head of the child. The pain returns again, the woman becomes more distressed, the face looks intensely red, accompanied with a trembling of the lower limbs; the pains are much longer; she lays hold of a towel, which is commonly fastened to the bedpost for the purpose, and she bears down with all her might, exclaiming, "Oh! when will all this be over?" It is impossible to express the impatience, to depict the suffering, of this awful and critical moment. The head of the child descends lower and lower into the vagina, or passage, until it firmly presses on the perineum, and shows itself at the outward or external orifice. In some instances, if it be the first child, it is apt to remain some time before it is expelled; if she has had the second or third child, or more, a few pains will generally complete the work. But in every instance, let me impress on your mind *patience;* and let Nature alone, for she will accomplish the labor.

When the infant gradually advances, enlarging the passage so that the crown of the head may be felt, the birth is then advanced one-third. When advanced forward as far as the ears, it is then in the vagina, or passage; if the membranes have not already burst, they may now be opened, and the waters by their effusion will render the vagina slippery, and promote the birth of the child. After the child is born, there is a freedom from pain, and the mother feels rejoiced, and "thanks God" for the sudden transition from pain and severe suffering to comparative ease.

The navel-string may be divided as soon as the child is born, or a few minutes afterward, giving time to establish fairly, by breathing or crying, the new mode of life. I generally let it remain five or ten minutes, until the cord ceases to beat, before its connection with the mother is severed, or

the navel-string is cut. If separated immediately after birth, it may do an injury; therefore it is advisable to let it remain on the bed for a few minutes. As soon as you see signs of life established in the child, the navel-string must be tied with a small cord, or string, or a piece of silk thread, which has been rendered clean by dipping in boiling water. It should be strong enough to bear tying in a tight knot. First tie the navel-string two inches from the belly of the child, then again two inches from the first, so as to leave a space between, and, with a sharp pair of scissors, cut the cord or navel-string so as to separate the child from the mother. The cord should be well tied, two inches from the belly, as the child may otherwise lose its life by the loss of blood; then attend to it, and see that the string does not come off. If it does, another string must be tied immediately around it, as serious accidents have frequently occurred by this neglect—the child bleeding to death. The child, on being taken away or separated from the mother, is to be placed in flannel in the arms of the nurse, and put in a moderately warm situation.

The After-birth should next be attended to. Generally, from twenty to thirty minutes elapse between the birth of the child and the expulsion of the Placenta, or After-birth. In a large proportion of cases, the After-birth will come away generally in the course of ten or twenty minutes after the birth of the child. It will be proper, however, to catch hold of the cord, and carefully ascertain if the Placenta can be felt in the passage, and whether the woman is losing more blood than is natural at such a time. If the Placenta can be felt in the passage, no great danger need be apprehended, as a few pains, a little gentle motion, and very moderate extension of the cord, will deliver it safely. When it remains high up in the uterus, however, and especially if there be an unusual loss of blood, the action of the womb must be promoted by pressing and kneading the lower part of the abdomen, by grasping or squeezing the womb gently in the hand, at the same time pulling *very moderately* and moving the cord, so as to make the extension in different directions. Great care is necessary in these cases not to pull so hard as to break or separate the cord from the Placenta, or to bring down the womb—the latter of which accidents would be fatal, and the former, to say the least of it, very troublesome. As a rule, it is safest *not* to pull on the cord at all.

In cases of excessive Flooding, whether the After-birth has come away or not, the woman should be placed upon her back, with her head and shoulders low, be kept perfectly still, and cold Vinegar, Spirits, or Water applied freely to the lower part of the abdomen and birth-place, by means of Cotton or Linen Cloths, which should be changed every few minutes until the Flooding is arrested. If the After-birth be retained in the womb, do not hurry it, but wait for the pains to come on. Great care is necessary, in these cases, not to pull so hard as to break or to separate the cord from the Placenta. Sometimes a change of position assists the After-birth to come away.

If the pains are severe after the After-birth has come away, give 20 or 30 drops of Laudanum, or 1 or 2 teaspoonfuls of Paregoric. No attempt should be made to move the patient or change her clothes for some minutes. Put a dry towel (or clean gauze pad) to the birth-place. After she has fully revived, change her clothing, and put dry articles beneath her. The greatest caution should be observed that she does not exert herself so as to cause the loss of blood. For two or three days after delivery, the patient should be kept perfectly quiet, see but little company, and be restricted to a plain diet. The bowels, if necessary, should be moved with some gentle Laxative, as Castor Oil. The milk generally comes on the third or fourth day, but may come on the second or fifth. At this time, there is generally some little Fever, Headache, Hot Skin, and Thirst. The Lochia, or Discharge, which a woman has for several days after the birth of the child, may stop; this produces a slight fever; but when the milk comes on, this secretion is established.

Should the breasts become hard, they must be softened by frequently and gently rubbing them with the hands and by the application of flannel cloths, squeezed out of the Lard as hot as can be borne. Draw the breasts frequently with the Breast-Pump as the milk can be seldom drawn out by the child during the first week or ten days. An error is often committed, and much suffering is frequently caused, by attempting to force out the milk when the breasts are hard and caked, sore and painful, before they are softened by rubbing them.

In closing these remarks, I cannot urge too strongly upon every midwife the great importance, during the time of labor, of keeping the woman calm and composed, and not to hurry Nature ; by this course of conduct, a great variety of accidents may be prevented. Besides, women should be aware of the fact that hundreds of deaths and a long train of diseases are produced by too great haste, and not waiting patiently for the operations of Nature; her laws cannot be infringed upon with impunity. A long experience in my profession, in the Obstetric Art, has convinced me that patience is the great remedy in childbirth.

The pains and suffering connected with birth, or parturition, are often great and protracted. When the trial comes, the fortitude and resignation with which those sufferings are borne, by the most delicate females, should call forth the kindness and sympathy of man. That women generally endure pain and sickness with more fortitude and patience than men, is evident. Looking forward with the pleasing hope of being the mother of a tender offspring, upon which she can lavish her affection and tenderness, sustains her in fulfilling the conditional requirements of Nature. Few men could be induced, for any consideration, to suffer in a similar manner. Then, how imperative the duty of every husband to be kind to the mother of his children, and to sustain her amidst her trials and afflictions ; for God has devolved this sacred trust on man, that his smile and tenderness should soothe her in the moments of sorrow. It is in moments like these

which give exercise to the noblest charities of our nature, in offices of kindness to our best and most devoted friend on earth, a faithful and affectionate wife. The female constitution being of a more delicate conformation, and having a finer texture of nerves than the other sex, gives women a quickness of sensibility and great promptitude of expression; it softens their manners, refines their ideas, and produces a lively sense of pleasure and pain; but while they enjoy these advantages, the peculiar construction of their frame subjects them to painful and critical vicissitudes, that affect not only their health, but also their temper, which fully entitle them to all possible lenity and indulgence.

In a long practice in my profession, how continuously have I witnessed effects from these causes on the functions of the sexual organs! Every part of the animal economy is inflamed by the Passions, but none more so than the Uterus or Womb. Anger, Fear, Grief, and other affections of the mind, often occasion obstructions of the Menstrual Discharge and of the Womb, which prove very difficult to cure, unless by careful and skillful treatment. I trust I have been sufficiently explicit in my directions to place you upon your guard, so that you may be circumspect in your conduct at such times, for females have sufferings to endure, from diseases of the Womb and other afflictions, that will be hereafter mentioned, which should call forth the indulgence and sympathies of every noble and feeling heart.

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## DIRECTIONS FOR NURSES.

The directions which I shall give, will impart such information as will enable a woman of good common sense and observation to manage almost any ordinary case of labor without the aid of a physician. Most of the accidents that occur during the course of labor, or childbirth, we believe, are produced by not giving Nature time to perform her operations. A nurse should remember, if she wishes to be considered skillful in her calling, never to force Nature, but to give her time to perform those operations; this will enable her to be successful in almost every case. It fortunately happens, that in those cases which terminate quickly, but little assistance is necessary; and thousands would pass safely through this ordeal of Nature, if they would but exercise patience and fortitude. A careful and experienced accoucheur, or midwife, gives a woman confidence, relieves her of much anxiety, and thereby enhances her chance of going through her confinement safely.

By far the most important feature of successful midwifery is cleanliness. The patient, nurse, physician, bedroom, bed, and bedding should be absolutely clean. I cannot impress this necessity too strongly upon you;

for carelessness in this respect is the cause of child-bed fever. No nurse should attend a confinement who has recently been near a patient with Erysipelas or other contagious disease. It is not at all amiss to have all the linen thoroughly sterilized by boiling and drying in the oven; the patient should have a complete bath shortly before confinement; the doctor's and nurse's hands and nails should be absolutely clean, being scrubbed with soap, water, and a brush and then soaked in Alcohol or Bichloride Solution, after which nothing that is not clean should be touched. The examining finger, after it is once cleaned, should touch nothing but the parts to be examined. It is not amiss for both doctor and nurse to wear a sterilized gown over their ordinary clothes. This is no place for a false modesty, the bed-clothes and gown of the patient should be arranged so that the doctor can see what he is doing when he makes the examinations and should not have to be guided by the sense of touch alone.

When a woman is expecting to be confined, her arrangements as to her room should be attended to, as frequently, when the morning and evening winds are chilly and damp, a little fire may be necessary. A mattress is preferable to most other kinds, being comparatively clean and firm; however the pneumatic mattress is the ideal one. The bed-clothes and clothing intended for this purpose should be well dried and aired, and if the weather is cold, warmed, and everything in readiness, that there may be no delay when needed, or a change in them required. The bed should be well protected, to avoid a draught of air, and so arranged that everything that is wet or soiled be removed, in order to avoid the disagreeable and unwholesome smell that would arise during the woman's confinement in a warm or close apartment.

Labor usually takes place about the end of the ninth month, or the thirty-ninth week of Pregnancy; which varies but little from four and a half months after Quickening, or the first perceptible motion of the fœtus, or child. It frequently happens that a woman is troubled with irregular pains, more or less severe, for a number of days, or even several weeks, previous to her confinement, which, from their not producing any effect toward expelling the child, are called False Pains. These pains are usually most troublesome during the night, and may be entirely absent during the day. They are often sharp and tedious to bear, coming on at irregular intervals, and do not bear down like efficient and expulsive contractions of the womb, nor are they attended with a discharge from the vagina or womb, as is usually the case in real labor. When the pains are suspected to be false, they may be relieved by warm Sudorific and Anodyne Drinks, or Camphor and a little Hot Water; or if these do not give relief, a teaspoonful of Paregoric, or 20 or 30 drops of Laudanum may be given, which may be repeated, if it becomes necessary, in three or four hours. No danger need be apprehended from giving an Anodyne, for if the labor be

actually beginning, it will often have a good effect in regulating the pains, and advancing the labor or childbirth.

When the pains come on at regular intervals, gradually increasing, called grinding pains, and attended with a bearing down sensation, a looseness of the bowels, frequent desire to make water, and a slight discharge or a moisture from the birth-place, it will be strong evidence that true labor has commenced, however slow or feeble the pains may be at the commencement. The discharge is often colored, and sometimes there is an appearance of fresh blood. Should the case prove tedious, or the pains feeble or irregular, bathe the feet in Hot Water, and give a small dose of Quinine which will be followed by beneficial effects; the pains will now become more regular, and stronger. A dose of Castor Oil, or an injection of Salt and Warm Water with soap by evacuating or purging the lower portion of the bowels, adds greatly to the ease and celerity of the birth of the child, and ought never to be neglected when the bowels are not free. When it is desirable to increase the force of the pains, let the patient drink freely of Cold Water. I have often produced or increased the pains by this valuable, though perfectly simple and safe remedy. Ergot or Spurred Rye is sometimes administered for this purpose; but it is an unsafe medicine, except in cases of a peculiar and difficult kind, and should not be given without the advice of a physician, as it will endanger the life of the child, and probably that of the woman. It should never be given until the Placenta is delivered.

The location of the pains is different in different cases, though the usual pain at the commencement of labor is in the lower part of the abdomen or belly, and extending round into the back and hips. In the last stage, they are usually confined to the lower part or small of the back. When these pains continue hard in the lower part of the abdomen for a *long time*, and confined to this part alone, there may be reason to fear the case may be a tedious one, as in some instances the child rests upon the pubic bones for some time before it descends into the pelvis.

When you have ascertained that the actual labor is progressing, which is known by the symptoms I have before described to you, and by introducing your finger up the birthplace, well greased with Sterile Petrolatum, which should be done with much care and tenderness, your nails being closely and smoothly pared, you will feel the mouth of the womb dilate or open during the time that each pain comes on, and the bladder or bag containing the waters. If the labor be not much advanced, you will feel the mouth of the womb. and its dilatation or opening more gradually at every pain.

The patient ought to be encouraged by cheerful conversation, and her mind kept occupied. Light nourishment should be given, as a cup of Tea or Cold Water. The pernicious and too prevalent custom of giving stimulants, such as Brandy, Whiskey, etc., is to be avoided, except in cases of great prostration or weakness. The patient should, if convenient and

comfortable to her, lie upon her left side. Some, however, prefer a different position. A practice which is often followed by midwives, which cannot be too strongly condemned, and which is highly dangerous, is that of delivering a woman kneeling on the floor. As I have before told you, the best position is generally on the left side, the body and head being elevated by pillows. Such a position, however, need not be taken until the labor has advanced, and the pains have become frequent and severe; until which time, I allow my patient to sit up, or walk about, or take her pains in any position which she may prefer. The time for her being put to bed may be known by the change of the pains becoming longer, causing her to hold her breath, and to make bearing down efforts, showing fully that labor is coming to a close. Presently the membranes will break and the water be discharged. Now place a pillow between her knees, and occasionally elevate or lift her upon her knees at each pain, for the purpose of affording free space. A towel, sheet, or some convenient article, should be tied to the bed-post, so that at each pain the woman may pull it, as it assists her very much in her efforts, and she derives great benefit and comfort from the support.

When the last strong pains of labor are expelling the head of the child, as it advances, press the right hand steadily and firmly against the part between the anus and birthplace, called by physicians *Perineum*, so as to give that part support, and prevent its rupturing or tearing; at the same time inclining the child's head to the pubes, which means the parts that form the arch in front. It is really important to attend to this matter, as by want of proper care, from hurrying the birth of the child, many serious accidents have occurred — the birthplace and anus have become one opening from the tearing of the Perineum.

As soon as the head of the infant comes out, the midwife ought to pass her fingers carefully around its neck, to ascertain that it is free, as it sometimes happens, that the cord is twisted around the child's neck. Should this be the case, she must endeavor gently to slip it over the head, otherwise the neck may be so strongly compressed as to strangle the infant. At this period, the mouth and nose of the child, if there is any delay in the passage of the body, ought to be kept as free as possible from the discharges from the birthplace, as they may be drawn in by the infant in its efforts to breathe. Neither ought the body, or even the legs, of the infant, to be drawn from the mother too rapidly; their expulsion should be left to the natural efforts of the womb; for if too suddenly pulled away, the natural action of the womb becomes changed, and irregular contraction, accompanied by unnecessary pain and discharge, may be the consequence. Hemorrhage may result from too rapid delivery, and tears are far more liable to occur, if the labor is rapidly completed.

After the child is born, or expelled, if it should not cry immediately or breathe freely, it should be chafed upon the stomach with a flannel cloth;

a little Cold Water, or Vinegar, or Spirits, should be sprinkled upon it, and occasionally a sudden gust of air blown upon it with the mouth or a fan, so as to resuscitate it. These means, if the child be alive, will generally revive it, and the breathing will be established; but should it remain apparently lifeless for some minutes, put it in Warm Water and rub it well, inflating the lungs by putting a quill or pipe-stem into one nostril, and then closing the nose and mouth so as to prevent the escape of the air through them, gently, until the lungs are filled. When the lungs are filled, the mouth and nose should be unclosed, and the air forced out by gentle pressure upon the chest and abdomen, or belly. This application may be done several times, and the motion of breathing be imitated by the pressure of the hand upon the belly of the child, giving it a rising and falling motion. By using this means, I have known many children that were apparently dead, resuscitated, or brought to life. If there is great urgency, you may put your mouth to the baby's and blow directly.

The new-born infant should be allowed to feel its new mode of life before that by which it previously existed is cut off; therefore, too much haste in tying the cord should be avoided. It ought to remain a few minutes before separating it from its mother, or until the cord ceases to beat. If separated too soon, it may produce injury to the child. The navel-cord must now be tied with a strong twisted cord, or thread, about as large as a knitting-needle, so that it will not break, as a string that is too fine is liable, when tied firmly, to cut the vessels and cause bleeding. It is necessary, particularly if the umbilical cord be large, to tie it very firmly, as the child may otherwise lose its life by the loss of blood, a circumstance that has frequently occurred within our knowledge. Tie the cord three fingers' breadth from the belly of the child. This leaves it long enough to tie again, should it be required. Then tie it again about two inches further from the first string, leaving a space between the two strings, and then divide the navel-cord with a sharp pair of scissors. The infant is now to be placed in flannel until washed and dressed. The child should be frequently examined, to ascertain whether it bleeds at the end of the cord; and if so, another string should be immediately tied to make it perfectly secure. As soon as the infant is separated from the mother, it is proper to ascertain, by the hand placed upon her belly, that there is not a twin child; if there be, the remaining bulk will indicate it in a way that can scarcely be mistaken. Should it prove so, the recurrence of the pain which is to effect the expulsion of the second child, must be quietly waited for. In most cases of twin children, the second is quickly and easily born, after the pains set in.

The child being taken away, as before directed, the After-birth should next be attended to. In a large proportion of cases, this will come away without assistance, in the course of ten or twenty minutes after the birth of the child. It will be proper, however, to take hold of the cord, and carefully ascertain if the Placenta or After-birth can be felt in the passage, and whether the woman is losing more blood than is natural at such times.

If the After-birth can be felt in the passage, a few pains or a little gentle motion, or a very moderate pulling of the cord, will deliver it safely. When it remains high up in the belly, however, and especially if there be any unusual loss of blood, the action of the womb must be promoted by pressing and kneading the lower part of the abdomen by grasping and squeezing the womb gently in the hand, at the same time pulling very moderately, and moving the cord, so as to make the extension in different directions. Great care, however, is necessary in these cases, not to pull so hard as to break or separate the cord from the After-birth, or to bring down the womb, the latter of which accidents would be fatal, and the former, to say the least, would give a great deal of trouble. I have known cases where midwives and doctors have been in such great haste to get through with their labor as quickly as possible, to pull the After-birth away so fast as to produce Flooding or serious difficulties, which may eventually, as it does in many instances, produce a Falling of the Womb. Every midwife or physician, has, or ought to have, sufficient experience to be aware of the danger of pulling away the After-birth, instead of waiting the regular efforts of Nature, and assisting her in her operations; that childbirth is a natural process, and that Nature is fully competent in all *ordinary* cases, and in *extraordinary* ones oftener than is usually imagined. In cases of excessive Flooding, whether the After-birth has come away or not, the woman should be placed upon her back, with her head and shoulders low; kept perfectly still, and Cold Vinegar, or Water, or Spirits, applied freely to the lower part of the bowels, and to the birthplace, or genital organs, by means of cotton or linen cloths, which must be frequently changed until the Flooding is stopped. If, under these circumstances, the After-birth be retained in the womb, the most skillful assistance ought to be obtained to deliver it safely.

The drinks, after the delivery, should be Cold Water, Coffee, or Tea. If the patient should feel weak or faint, a little Camphor may be given in a little Cold Water, or a little Brandy or Whiskey may be given.

If the pains, called After-pains, should continue severe, after the After-birth has come away, 20 or 30 drops of Laudanum or 1 or 2 teaspoonfuls of Paregoric may be given, or some other Anodyne, which will generally moderate the pain and afford rest. No attempt should be made to move or change the clothes until the Flooding is done, particularly if the woman is faint or nervous. In changing her clothing and putting her to bed, whether there is Flooding or not, be cautious that she does not exert herself so as to bring it on. She ought, in no case, to be permitted to walk or stand upon her feet. After her delivery, she ought to be kept perfectly quiet for two or three days, see but little company, and use plain, unstimulating diet, and such kinds of food as are the easiest of digestion. If her bowels are costive on the third day after delivery, give a dose of Castor Oil or some gentle purgative; if the bowels are sufficiently open and the woman be comfortable, this will be unnecessary. Should the bowels be sore or

painful, make a Liniment of an ounce of Gum Camphor dissolved in a half-pint of Sweet Oil; rub the bowels with it, and apply, after rubbing, warm flannels. If the breasts are swelled, hard and painful, this Liniment will likewise be very beneficial in such cases. On the third or fourth day, and sometimes earlier, the milk generally comes; and if delayed to the fifth day, it is usually more or less accompanied with some little Fever, Headache, Hot Skin, and Thirst; and the countenance has a red appearance. Should the breasts become hard or swelled, they must be softened by frequent applications of Sweet Oil, or by gently rubbing them with the hand with Oil as hot as it can be borne. This usually affords instant relief. After rubbing them well, apply flannel, dipped in Oil, as hot as it can be borne. The milk should also be drawn occasionally with a suitable instrument called a Breast Pump. When this proper course is taken, there is seldom any trouble with the breasts. A great error is frequently made, and produces much suffering, by attempting to force out the milk when the breasts are hard, sore, and painful, before they are softened by rubbing them well, as I have before mentioned. Be careful, then, in the first place, not to allow them to get very full and hard, until they are softened; and never attempt to force out the milk with the Breast Pump until they are soft. It is in vain to make the attempt to force it until they are so, as you will only give your patient a great deal of unnecessary suffering. The Pump is a valuable instrument when judiciously used; but it is too powerful in the hands of those who do not understand how to use it properly.

The too common practice of confining a woman to her bed three or four weeks is unnecessary, as it debilitates her system, and frequently, instead of benefiting, does injury to the general health. The length of time, as to her confinement, depends much upon habit, as some women can do that which, in similar circumstances, others would suffer much from. If the confinement, or childbirth, has not been very severe, after the first week, allow her to sit a while on an easy chair, until her bed is aired and made up, particularly if it is warm weather; and by the fire, in a comfortable room, in winter. This will, from the change of position, afford her great comfort, and assist her much in regaining her strength. It may not, however, be proper to permit her to stand or walk much for at least ten days after her confinement, particularly if she is weak, or has lost much blood, by which I mean Flooding, during her labor. I have, under ordinary circumstances, permitted women, whose habits have been regulated by an active life, to return, with care, after the second week, to their usual mode of domestic affairs, attending particularly at this time to the feet being well protected from cold and dampness, and the clothing sufficiently warm, allowing such food as may assist in affording a sufficiency of wholesome milk for the infant.

In regard to to the bandage immediately after the delivery, it will always be found beneficial, if there has been an unusual loss of blood, attended with weakness, relaxation, etc. A moderately tight and well-adjusted

bandage is proper, and should be worn for a few days. The bandage should always feel comfortable and easy, as a tight one interferes more or less with respiration or breathing, by preventing a free and easy descent of the diaphragm, by limiting the action of the respiratory muscles, interrupting, in some degree, the digestion, and the healthy motion of the intestines, by compressing the stomach and bowels. In every case, let the bandage be smooth and comfortable to the feelings of the patient. Some physicians do not use the bandage at all, claiming that it may be in the way in case of an emergency early, and useless later. In fact this is a matter of choice rather than of necessity.

The management of a new-born infant is a matter of great importance in the preservation of the life of the child. A few brief observations on this subject may be necessary. As soon as the infant is separated from the mother, by cutting the cord or navel-string, it should be wrapped in warm, dry flannel, so as to prevent it from taking any cold; then great pains should be taken to wash it clean, gently and tenderly, with Warm Water and mild Soap, and particularly about the eyes, under the arms, and in the groins. If it is thickly covered with the white unctuous matter, which is often very difficult to remove, you will, before washing, find it much easier to remove this by rubbing the infant over with fresh Sweet Oil. The child should be as little exposed to the air as possible during this process, and wiped dry and wrapped up in a warm flannel cloth, as soon as possible, so as to prevent its taking cold.

In dressing the navel, draw the cord or navel-string through a folded clean piece of gauze, or other clean cloth in which a hole is to be made of suitable size to admit the cord to pass through it; dust the cord and dressings with Boric Acid Powder, or other drying powder, so as to prevent the edges of the rag from excoriating it, or making it sore; then turn the end of the cord up, and place over it another fold of gauze; put a bandage moderately tight around the child, in such a manner that it will keep the dressings on the navel-string from slipping or being drawn up. Keep the bandage smooth and in its proper place, not by pins, but by sewing it with a needle and thread, and yet not so tight as to interfere with the breathing. It is frequently the case that the infant does not pass any water for several days after it is born; the cause is from a want of secretion by the kidneys.

Once more I will repeat, so as to impress it upon your minds, cleanliness is essential above all other things.

## AFTER-BIRTH.

The After-birth, medically called the *Placenta*, is the substance which comes away from the mother after the birth of a child. It is an organized body, of a glandular appearance, circular form, about six inches in diameter, and as thick as the palm of the hand. Its office is to transfer oxygen and nutrition from the mother's blood to that of the fœtus. It is

filled with arteries and veins, and in appearance resembles the spleen. The navel-string of the child, which is in general about half a yard in length, and as large round as the little finger, proceeds from the After-birth, and enters the belly of the child. The navel-string, or cord, as it is called, contains two arteries and one vein. The vein conveys the blood from the Placenta to the child; and the two arteries convey the blood from the child back to the Placenta. These arteries beat in consonance with the beating of the child's heart. The After-birth, during the growth of the child in the womb, adheres intimately to its substance; but after the child is born, the After-birth separates and comes off with the membranes which incloses the child before birth. These membranes, three in number, often adhere together in such a manner that they appear to be only one. They are called the *Amnion*, *Chorion*, and *Decidua*. The After-birth is convex on the side which adheres to the womb, and concave on the other. It commonly adheres to the fundus of the womb, although it may, and often does, adhere to almost every other part; if it is attached over the opening of the womb as sometimes occurs, there is usually more or less bleeding from the seventh month, and often fatal hemorrhage at the time of birth unless properly treated. Fortunately this is a rare condition. It usually comes away from the mother in the course of half an hour after the child is born. In some instances, it is expelled at the same time with the child and the membranes which contain the child are broken. After the birth of the child, there is a short cessation of the pains, but they soon return and expel the After-birth.

The blood of the fœtus is entirely different from that of the mother and the two kinds do not mix. The blood-vessels of the umbilical cord terminate in a net work of loops, in the Placenta, and these loops of vessels lie in contact with similar vessels in the walls of the uterus or womb. Nutritious material and oxygen are absorbed by the baby's blood from the mother's blood, through the two sets of vessel walls. The pulse of the fœtus is about twice as fast as the mother's.

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## AFTER-PAINS.

In childbirth there are three distinct spells of pain—the first comes on to expel the child; the second to expel the After-birth, and the third to expel the clots of blood which accumulate in the womb after the expulsion of the After-birth, and to contract the organ to its natural size. The After-pains begin after the expulsion of the After-birth. In some cases these pains are very slight, especially with the first child. In other cases, they will be almost as hard as those which expel the child. They commonly cease after about twenty-four hours, but will sometimes continue for two or three days. If any part of the After-birth has been left, the pains may continue until it is expelled. The After-pains are commonly harmless, but when

they are very severe, and prevent sleep, give 10 to 20 drops of Laudanum, which will regulate them. A teaspoonful of Paregoric will answer the same purpose. Unless the pains are very severe, the Laudanum or Paregoric will be unnecessary.

After-pains are necessary and essential, and are caused by the efforts of the womb to attain that properly contracted condition on which the woman's safety depends. If they are very severe, it is generally owing to the presence of clotted blood, which must be expelled before they moderate. If these pains are moderate, by which is meant the usual severity after the child is born, they are salutary, and should not be interfered with. After-pains are often kept up for some length of time by the bowels being costive; in such cases, a tablespoonful of Castor Oil is a safe and effectual remedy. Too tight bandaging frequently aggravates the After-pains. If the confinement be a first one, the After-pains will scarcely give trouble. When they are severe, as I have before directed, 10 to 20 drops of Laudanum may be given in a little Water.

The discharges which often continue from the womb for some time, require that the birthplace should be externally cleansed with Warm Water, occasionally, and care should be taken to prevent her clothes from being wet. Perfect quietude is to be observed, light nourishment given, and the infant applied to the breast, whether it appears to contain milk or not. If Laudanum, Paregoric, or any other opiate has been given, and the bowels are confined, which is usually the case when such medicines have been used to allay pain, it will be proper, on the morning of the third day, to give a dose of Castor Oil. After the bowels have been moved, and the patient is doing well, she may be allowed gradually a more nourishing diet; but stimulants should never be taken, unless for some special reason, such as great Debility or Weakness.

If the foregoing directions are attended to, there are few cases that will not progress regularly to a complete convalescence. Remember that during the whole of this time there is no greater comfort, or more salutary practice, than the free use of Tepid Water, *so as to preserve the strictest cleanliness.* In doing this, be always very careful that in employing these means you do not wet the bed or clothing of your patient. The great object to be kept in mind, in the management of Childbirth, is to have patience; never to hurry or force Nature; to encourage the mind of the patient by assuring her that the process, though a painful, is a natural one; and our Heavenly Father, who has ordered its marvelous arrangement and adaptations, will be present in the hour of travail.

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## SYMPTOMS OR SIGNS OF PREGNACY.

Conception is succeeded by many important changes in the constitution, and generally by affections of various parts of the body, which are

called Signs of Pregnancy. These signs are: 1st. A cessation or suspension of the Menses. 2d. A certain derangement of the stomach, termed Morning Sickness. On first awaking, the woman feels as usual, but on standing upon her feet, a qualmishness or sickness comes over her, and shortly afterward retching or vomiting takes place. Some women, however, do not suffer at all, or but very little, compared with others, who are sick from the time they conceive until they are delivered. 3d. In two or three months, certain changes may be noticed in the breasts; they swell and enlarge, with pricking and darting sensations, like those attending the commencement of Menstruation. Some women, however, experience scarcely any kind of inconvenience whatever; while others, again, are perfectly incapable of retaining the least thing on their stomach, and are thereby reduced to a state of extreme weakness. With some women the vomiting will continue during the whole, or greater part, of the second stage of Pregnancy as well as the first; but it does not usually happen. Partial suppression of the urine or water, with frequent inclination to void it; itching about the external parts of generation; Costiveness, Tenesmus, and Piles, are the complaints they are chiefly incommoded by during this period. Most women quicken about the sixteenth week after Conception, at which time the mother becomes sensible of the slightest efforts of the child; and besides the complaints just enumerated, she will then be liable to sudden unpleasant feelings, and slight hysteric affections. According to the common received opinion, Quickening, so termed, is generally understood to commence at the time when particular sensations are perceived by the mother, caused by the first motion of the child. The most usual time of feeling any such symptom, is about the latter end of the fourth, or beginning of the fifth month of Pregnancy. At this period the uterus, or womb, filling up the pelvis, slips out and rises above the rim; and, from the sudden transition, women of delicate constitution and irritable fiber are apt to feel unpleasant, more particularly so if in an erect position. During the last three months, or third stage of Pregnancy, general uneasiness, restlessness (particularly at night), costiveness, swellings of the feet, ankles, and external genital organs, cramps in the legs and thighs, difficulty of retaining the urine or water for any length of time, varicose swellings of the veins of the belly and lower extremities, and piles, usually prove most troublesome. In Pregnancy, the nipple becomes changed; the circle round it is of a brown or dark color. In those who have blue eyes, fair complexion, and light hair, this change does not appear until late in Pregnancy; but in those of dark hair, eyes, and complexion, the color of the nipple or circle, medically called *Areola*, becomes darkly colored. 4th. In the third month, but not before, the belly begins to enlarge or swell, and gradually increase in size until the full term of Pregnancy is completed. 5th. Between the sixteenth and twentieth week, the womb rises up into the belly, and the motion of the child is felt, which is called Quickening. The first time a woman is with child, this sensation of Quickening is like

that of a bird fluttering within her; at other times she feels a tickling or pushing sensation; or the child gives a kick or a jump, and this too with so much energy as to move the petticoats, a book, or any light article she may have in her lap.

It is of importance to remember the above symptoms, and the order in which they occur: 1st. Cessation of the Menses; 2d. Morning Sickness; 3d. Swelling and Darting Pains in the Breast, and dark color around the Nipples; 4th. Gradual Enlargement of the Abdomen or Belly; 5th. The Movements of the Child.

In *ninety-nine* cases out of a hundred, if these symptoms are present, the woman is pregnant. Much of the unpleasant sickness pregnant women are subject to may usually be avoided by keeping the bowels gently open with Seidlitz Powders, Castor Oil, or Pills of Rhubarb, which should be taken occasionally. A clyster made of warm Soapsuds will often be sufficient, if repeated every few days; or Senna and Manna; and if there be any aversion to taking medicine, give some simple articles, such as Roasted Apples, Figs, Prunes, or anything that will quiet the stomach, and prevent costiveness of the bowels.

The Toothache, so often complained of by pregnant women, and which may occur at any period, is seldom relieved by extraction, having its seat in the adjacent nerves of the face or jaws, and is neuralgic. The teeth ought not to be drawn during Pregnancy, unless urgently required, but should be relieved by applying Hot Fomentations to the face. Rubbing the jaw externally with Spirits of Camphor or Laudanum, or applying Mustard Plasters behind the ears, will afford relief.

The cramps of the legs, etc., in Pregnancy, caused by the pressure of the enlarged womb on the nerves, are often troublesome, but not attended with any danger, and may be speedily relieved by a change of posture and friction, or rubbing with Spirits of Camphor, or hot Whiskey and Salt. Palpitation of the Heart occurs frequently, and usually about the period of Quickening. In general, it is the result of a disordered stomach, and may be relieved by attention to diet, and moderate doses of Magnesia and Epsom Salts, of equal quantities. The Palpitation of the Heart may be produced by a morbid state of the nerves, and is then termed hysterical. Attention in all such cases should be paid to the diet, air, exercise, etc., with the view of improving the strength, the bowels being kept open by mild means. All exciting or agitating subjects should be carefully avoided, and the mind of the pregnant woman kept calm and tranquil; for the mind, in the early stages of Pregnancy, exercises the most powerful influence over the child through life; and how many peculiar traits of character have been indelibly fixed upon their offspring from these exciting causes, are evident in many families. When the Palpitation occurs from the state of the nerves, as before described, producing uncomfortable feelings, a teaspoonful of the Tincture of Castor or Asafetida, with an equal quantity of Compound Spirits of Lavender, mixed in a little Water, will

seldom fail to afford relief, which may, if necessary, be repeated on its recurrence.

Morning Sickness is one of the most painful feelings attendant on the pregnant state, which medicine commonly fails to relieve. A cup of Chamomile or Peppermint Tea, taken when first waking, and suffering the patient to be still for an hour, will frequently alleviate the distressing sickness, or a cup of strong, clear, black coffee may be tried before getting out of bed. If this does not succeed, a pill composed of Cerium Oxalate, 1 grain, the same amount of Bismuth, and a $\frac{1}{12}$ of a grain of Cocaine may be given every half hour until relief is secured. The use of these tablets should not be long continued. The diet should be regulated, sexual intercourse avoided, and rest secured. Sometimes the vomiting becomes so severe that it is necessary to induce abortion. In some cases feeding by the rectum is necessary, *i. e.*, predigested food is injected into the rectum, giving the stomach complete rest.

The anxiety, and sometimes despondency of mind, in other words, lowness of spirits, to which pregnant women are more or less liable, greatly depends on the state of their general health and the natural temper and character of the individual; but it can be greatly aggravated, and may often be excited by circumstances, or by officious persons. Let me, then, urge upon you *the important necessity* of keeping the mind as tranquil and cheerful as possible, particularly during the first four months of pregnancy; a judicious course of this kind will produce the most beneficial and well-balanced mind in the child; while, if the contrary, a desponding and nervous temperament, with many other peculiarities, will be the consequence.

The urine of a woman who is pregnant should be examined every two weeks during the eighth and ninth months of pregnancy; this is especially important if there has been any headache. The object is to determine the condition of the kidneys as they are forced to throw off the waste products of two instead of one body.

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## PUERPERAL FEVER—CHILDBED FEVER.

The Puerperal or Childbed Fever is a disease peculiar to women within a few days after delivery, and is generally considered a dangerous disease. It is usually of an inflammatory character, arising from inflammation of the womb, or of the peritoneum or lining membrane of the abdomen.

The usual symptoms are chilly sensations, succeeded by fever; headache; distention or swelling of the abdomen, with great sensitiveness and violent pain; suppression of the milk, and generally a suppression of the lochial discharge; nausea, sometimes vomiting; thirst; quick pulse; low spirits, and often delirium. Sometimes it assumes a Typhoid character, and is then still more dangerous. It usually appears about the third or

fourth day after delivery, though it may be much slower in making its appearance, in which case it is usually more protracted but less serious in its immediate results and less dangerous to life.

The causes are protracted and difficult labor; the use of instruments in delivery; confinement in a cold, damp room; improper treatment after delivery; and, above all other things filth; filth on the part of the patient, filth on the part of the nurse, and, finally, filth on the part of the doctor. Dirt and filth are the key to the cause, cleanliness the key to the prevention of Puerperal Fever. This disease is highly infectious, and anyone suffering with Boils, Abscesses or Erysipelas, or infectious diseases, should not come near a woman about to be confined. Nurses and doctors having at that time or shortly before had charge of people suffering from those conditions should not take charge of confinement cases. If proper cleanliness is observed at the time of the confinement and afterwards, the chances of having Puerperal Fever are reduced to a minimum and seldom occurs. The disease is caused by a germ, much like the one which causes Erysipelas, gaining entrance to the "raw" surface on the inside of the womb. A woman suffering from latent Gonorrhœa at the time of her confinement, may also have a form of Puerperal Fever, but it is usually not so severe.

TREATMENT.—A few cases of Puerperal Fever might be avoided by giving the patient a thorough and active purge, of the proper kind, the next day, or about twenty-four hours after delivery. For this there is nothing better than a full dose of Salts; or a dose, say three grains, of Podophyllin, with a teaspoonful or two of Cream of Tartar. This will carry off the unhealthy accumulations and secretions in the system, and tend greatly to prevent the disease.

Where the disease has commenced, if there be much nausea and sickness at the stomach, give an Emetic (see Emetic Powders)—follow, as soon as the Emetic is over, with an active Hydragogue Physic—say a grain or two of Calomel. Repeat this in three hours, if the first dose does not operate.

The fever usually runs high (102° to 105°), and for this purpose, *i. e.*, to reduce the temperature, cold Sponge Baths should be given every two hours. Stimulants are usually required for this purpose; half an ounce of Brandy may be given every hour or two, depending upon the strength of the pulse. Strychnine should also be given, a sixteenth of a grain every two or three hours or oftener. *Anti-streptococcic* syrum should be obtained if possible and used at once. Cold applications should be kept on the abdomen. Diet should be liquid, preferably milk; cold water may be taken freely. It may be well to scrape out the uterus; great care and skill are required in such an operation. Bichloride vaginal douches should be given. This is a serious disease, upon which Oliver Wendell Holmes has written much. (See his Medical Essays.)

Keep the bowels loose by occasional small doses of Podophyllin and Cream of Tartar; an occasional dose of Castor Oil and Turpentine will also be good, or Salts may be used as before.

# MILIARY FEVER.

This is a sort of eruptive Fever, of rare occurrence, however, and as it is almost exclusively confined to women during the period of childbed, it may be regarded as a form of Childbed Fever. The principal cause of the disease seems to be exposure to too great a degree of heat during confinement, as in an over-heated room, or too much hot and stimulating medicine. It is also more apt to attack those who are weakened by great fatigue, excessive evacuations, or hemorrhages, and other debilitating causes.

The eruption usually appears first on the breast, neck, upper part of the back, and gradually extends downward. The eruption consists of small red pimples, about the size of millet or cabbage-seed. Previous to the appearance of the eruption, the symptoms are usually slight chills; feeble, quick pulse; extreme weakness; anxiety; restlessness; sickness at the stomach; dryness of the mouth; white fur on the tongue; costive bowels; and hot, dry skin. These symptoms continue for two or three days, with dejection of spirits, sighing, and great despondency, and are succeeded by the breaking out of a peculiar sour-smelling sweat, which is soon followed by a burning, pricking sensation in the skin; then the eruption, a sort of rash, first, as I have remarked, appears about the breast and neck, and gradually extending to other parts of the body. About the seventh day, the eruptions usually become dry, and the skin peels off in scales. Sometimes, however, a new crop of pimples will appear, and even several successive crops, so that in such cases the disease may continue for several weeks. The disease is seldom dangerous; but a sudden disappearance or recession of the eruption, with great anxiety, dejection, weak and rapid pulse, and vomiting, are unfavorable symptoms.

Treatment.—The treatment in this disease should be very similar to that for Measles and other eruptive diseases. Keep the bowels loose with mild Cathartics. If the stomach appears to be much deranged, give an Emetic. The room must be kept well ventilated and clean, the clothing and covering light, the body bathed frequently with warm Saleratus Water, and the patient take plenty of cooling drinks; and if there be much restlessness, a dose of Diaphoretic or Dover's Powder may be given at night. The patient may also take Lemonade occasionally, or Water made pleasantly acid with Cream of Tartar, as a cooling drink. Care must be taken not to let the patient take cold. Mild treatment, cleanliness, pure air, light diet, and let the disease run its course, is the proper plan to pursue—being very careful to guard against taking sudden cold.

Should the fever become very severe, give Dover's Powders, in ten grain doses, every three or four hours, with a grain of Quinine in each dose. Should ulceration of the mouth take place, make use of proper gargles, such as recommended for Ulcerated Sore Mouth, or treat as recommended for Nursing Sore Mouth.

## MILK LEG—PHLEGMASIA ALBA DOLENS.

This disease consists of a swelling of one or both legs (usually but one), and generally occurs in women within a few days after Childbirth; or it may follow Abortion, or severe inflammation of the uterus or appendant organs. It usually commences with pain in the groin, attended with more or less fever, followed with swelling in the groin, which gradually extends into the thigh, and down the leg to the foot, which increases until, in a few days, the limb becomes, perhaps, double its natural size. The leg is smooth and hot; the skin tight, very sensitive, painful to the touch, and usually of a milky, or shining white color, attended with fever. The disease may begin to decline in two weeks, but sometimes it continues for five or six weeks, or even longer, causing great suffering and emaciation.

The direct cause of the disease is probably inflammation of the veins of the pelvis, extending to those of the extremity, which has been induced by injury to the parts in delivery, by neglect of proper treatment after delivery, or by Inflammation of the Womb, caused by retention of the Placenta, too sudden check of hemorrhage in Abortion, as no doubt is often the case, neglect to purge off the unhealthy matter and secretions soon after delivery, or to lack of cleanliness during the confinement. High living, during the latter stages of Pregnancy, is said to be a favoring cause of the disease.

Treatment.—The treatment here should be commenced like that for Inflammation of the Womb, with an active Hydragogue Cathartic; or, if the stomach is irritable and out of order, give first an emetic of Ipecac and Lobelia, and in a few hours after that is done operating, give Epsom Salts as directed for Inflammation of the Womb, and keep the bowels open by means of small doses of the same daily, or as often as necessary. Give also the Dover's Powders three or four times a day, to act on the skin and promote perspiration.

The leg should be bathed with a solution of Lead and Opium, made by adding a drachm of Tincture of Opium to an ounce of dilute Lead Water. Hot Fomentations of this solution may be kept on the limb all the time. If there is much pain, cotton may be wrapped around the limb. The feet and legs should be elevated, *i. e.*, made the highest part of the body, by supporting them on pillows. If discovered early enough the disease may sometimes be cut short by drawing the moistened finger over the vein, or painful part, and before the moisture has dried pass a stick of Lunar Caustic (Nitrate of Silver) over the same course. This will produce a black mark and will often cut the disease short.

The disease generally declines with copious sweating and discharge of urine, but goes off very slowly. It is sometimes the case that the swelling

never entirely disappears, and there is often more or less stiffness in the limb for a long time.

### CHRONIC FORM.

SHOULD the Milk Leg become *chronic* (that is, a portion of the swelling remain, giving the leg a rough, uneven appearance, terminating, as such cases generally do, in suppuration and running sores), the best treatment will be to open up all the swollen places freely with a clean, sharp knife, and dress with clean gauze, saturated with a one in five thousand solution of Bichloride of Mercury. When the sore places begin to heal, Tincture of Myrrh may be used instead of the Mercury solution. The leg should be elevated and kept at rest.

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## NURSING SORE MOUTH—STOMATITIS.

THIS is a disease which sometimes affects women during the period of nursing, or suckling of the infant. It consists in a cankerous sore mouth; the cankers or sores having a whitish gray appearance. They appear on the inside of the mouth and cheeks, and sometimes the disease extends down the throat, even to the stomach and bowels. It is a disease of the mucous membrane, which lines the mouth, throat, and ailmentary canal, and is mostly confined to mothers while nursing. The child is also generally affected with it. The disease resembles very much what is known as the *Thrush*. It sometimes appears during the latter months of Pregnancy; and I have known a few cases where it did not seem to have any connection with either Pregnancy or Nursing. In such instances, the disease has probably been caught from others, or is due to a general "run down" condition of the system.

TREATMENT.—The bowels should be thoroughly moved; perhaps the best medicine to use is Castor Oil aided with a soap and water enema, as this form of treatment will have less effect upon the child. It must be remembered that many drugs are partially excreted by or pass into the milk and may produce injurious effects upon the child, so that the fewer drugs a nursing mother takes, the better for the child. The mouth should be washed often with Alkaline Antiseptics, Borax Solutions, or Solutions of Potassium Chlorate. If the separate cankers are not too close together, they may be touched with the stick of Nitrate of Silver, or the mouth may be washed with a weak solution of Nitrate of Silver (a grain to the ounce of water), following with a wash of Salt Water. If the patient is nursing, it may become necessary to wean the child, as it is almost impossible to effect a cure while it continues to nurse. If it has the disease also, the same remedies may be given it, in properly reduced quantities.

## INFLUENCE OF THE MIND DURING GESTATION.

THERE is, perhaps, no department of Medical investigation which requires so much attention as the Mind during Pregnancy. It is, therefore, much to be regretted that females should give so little attention to so important a subject as this. The time, however, can not be far distant, when a knowledge of the laws that govern woman's constitution, under all circumstances, will be considered an indispensable branch of female education. Hitherto palliatives and curatives have been the principal means sought after and relied on; but when more liberal and enlightened views are obtained—when the cobwebs of false delicacy have been swept from society—when women are taught the importance of a knowledge of their organism, preventives and first principles will have their sway and take their proper place.

The physical and organic laws, when truly understood, will appear to the mind as institutions of the Creator, wise and salutary in themselves, unbending in their operation, and universal in their application. These interest our intellectual faculties, and strongly impress our sentiments. The necessity of obeying them comes to us with all the authority of a mandate from our Maker. While we confine ourselves to mere recommendations to beware of dampness, to observe temperance, or to take exercise, without explaining the principle, the injunction carries only the weight due to the authority of the individual who gives it, and is addressed to only two or three faculties—veneration and cautiousness, for instance, or self-love in him who receives it. But if we be made acquainted with the elements of the physical world, and with those of our organized system—with the uses of the different parts of the human body, and the conditions necessary to their healthy action—with the causes of their derangement, and the pains consequent thereon—with the obligation to attend to these conditions, because enforced on our moral sentiments and intellect, as a duty which is imposed by the Creator, and which we can not neglect without suffering punishment; then the motives to observe the physical and organic laws, as well as the power of doing so, will be necessarily increased. It is only by being taught the *principle* on which consequences depend, that we become capable of perceiving the *invariableness* of the results of the physical and organic laws, acquire confidence in, and respect for, the laws themselves, and fairly endeavor to accommodate our conduct to their operation.

These remarks should be sufficient to convince us of the great influence which the mind exercises over the body, and the important principles which govern the health of both mother and child during

the period of Gestation or Pregnancy. The effect, likewise, of the mother's imagination and sentiments on the mental constitution of her offspring, is a subject of the deepest interest to mankind; on obedience or disregard to this important law of Nature depends the happiness or misery of the domestic circle—the birthplace of the affections—the shrine of the heart. Prosperity may shower its brightest gifts on man; wealth and art may combine to beautify and embellish his habitation; science and literature may elevate his understanding, and refine his taste; the good and the wise may court his society; he may be exalted to the highest place in the gift of his countrymen; of what avail are all these advantages, if his home presents a scene of corroding anxiety or humiliating mortification, caused by feeble, sickly, or inefficient and badly organized children? Not until the public mind is fully awakened to the importance of the laws which govern a healthy action of mind and body, and also the hereditary descent of intellectual and moral qualities, can domestic happiness be predicated to a moral certainty, or approximate to a more perfect state. That order and law govern all matter, animate and inanimate, is too well established to admit of a doubt. Shall it then be said, that so important a subject as the physical and mental constitution of our children, is a mere matter of chance—the only department of creation not subject to fixed and invariable laws? Every just appreciation of the wisdom and goodness of a beneficent Creator forbid it! His laws are irrevocable; on the heads of the transgressors descends the punishment. It is written, "The sins of the parent will I visit upon the children."

Children take more of the mental constitution and temperament of the father than the mother. That the physical constitution is derived or controlled almost exclusively by the mother, appears, from close observation, to be fully evident. Hence, we may properly reason, that if a father is dull, heavy, and stupid habitually, from the effects of liquor, or even at the time of generation, the child will partake of his mental temperament to a greater or less degree. I will here quote one or two facts in elucidation of my opinion. Some years ago, I was the attending physician of a gentleman in Virginia, who occupied a distinguished office under the Government, was highly respected, and belonged, as a common phrase expresses it, to "one of the first families of Virginia." He married a Miss P., a lady of twenty-two years of age, inheriting from both her parents a most vigorous constitution, combined with great personal beauty, but dull mental temperament. Her husband was thirteen years her senior, and also blessed with perfect health, and possessed all the qualifications of a gentleman, save one, *sobriety*, for he was a *periodical drunkard*. This

propensity he inherited from his father; his ungovernable thirst for alcoholic stimulants, or monomania—for in truth it might be called such—generally occurred every nine months, and the approach of this peculiar susceptibility usually produced a most depressed state of mind. How often has he exclaimed, as strongly impressed with the belief that the result would be fatal, "Worlds would I give, if I possessed them, if I could get rid of this influence—this morbid thirst for liquor—this poison of hell; but, alas! I have no power to resist it." Overcome by this instinctive impulse of the mind, he would take his jug of whisky to his room, and there drink to excess, until a general exhaustion of the whole nervous system took place, or until Delirium Tremens was the consequence. I have seen him suffer frequently in these convulsive spasms, until the perspiration would start from every pore, until Nature was overcome by these terrible paroxysms, and the enfeebled sufferer sink into madness from a diseased state of the brain. It was not uncommon for him to solicit restraint, on perceiving a tendency to the recurrence of such a mania, rather than expose those he loved to the risk of being injured. A breath of air, or a ray of light, a motion, a sound, or the sight of any object, would excite the fiercest convulsions. How often have I heard him make the most solemn promises to his wife of entire reformation. Again and again, I have seen this talented and kind-hearted man bowed for days to the very earth, under a sense of his transgressions. But, alas! after recovery, he went forth to commit the same sin. And yet, in this terrific disease, he would often exclaim, "Blessed Saviour, take this cup of affliction from me, and let me sit at Thy feet, clothed in my right mind! Cast out this demon which I can not subdue! Oh! God, give me power by faith to overcome this temptation—this dreadful propensity—this thirst for liquor!"

In proof of the consequences of this unnatural indulgence in liquor, and the injurious effects of his intemperance, Mrs. —— had three children: the first was sickly and weak, weighing not more than two pounds at birth, which lived but a few weeks; the second, a female, born an idiot, now in the Lunatic Asylum; the third, a son, who, at the age of fifteen, became, like his father, a periodical drunkard, licentious and reckless, indulgent in all his appetites, and devoted to liquor to a degree almost unparalleled. I was present at the birth of these three children. Now, is not this strong evidence that the father stamped his character upon his children most perfectly? Then look at the subject in its true light, and see how many pure-hearted and lovely women have drooped in spirit, and health, and their happiness been destroyed, when they have learned, too late, that they have been united to a drunkard, or a profligate and licentious man.

In these remarks there is one exceedingly delicate point which I must allude to, so as to prevent an injury that probably a whole life can never repair. Remember, when you become *enceinte*, that the father has complete influence at this period over the fœtus, before its formation—the mother, exclusively, afterward. Then how essential that the father, as well as the mother, be pure in thought and free from vice, as they have so strong an influence upon the disposition and temperament of unborn generations! Why, then, should parents, who profess the highest motives and affections for their children, not reflect on the dreadful consequence of conferring on their offspring this inheritable vice, Intemperance? The parent who yields to this habit, may undoubtedly confer, in many instances, a desire which may be easily called into action by circumstances or an impulsive feeling, which wars against reason, and even a consciousness that it is wrong. Though this desire itself, in many instances, is an ungovernable propensity, nothing is more true in its consequences than this fact, that each and every infant, during the time of Gestation, possesses an inherent faculty of thought, volition, and feeling, conferred upon it from the influence or state of mind of the parent.

There is no period of life at which it is of so much consequence to observe tranquillity of mind, and to avoid stimulants, as during Pregnancy. Not only is the nervous system then unusually susceptible of impressions and disease at this time, but the mind, from the slightest cause of excitement, may impart or exercise peculiar traits of character in the offspring, as we have evidence, in many instances, of a craving and capricious desire for food, which not unfrequently marks the infant. That impressions received by the mind of the parent are, in their influence, transmitted to the offspring, is undeniable, since experiments have demonstrated the fact in the clearest manner. But, with this profound subject is connected an important secret, which peculiarly belongs to the Omniscient. The holy of holies is before us, where the Highest reveals His glory. We can not lift the vail. Let us bow in reverent awe, and wait for fuller knowledge. Such facts, relating to creation and procreation, however, as are important to our conduct, are sufficiently manifest to our understandings, although we still find ourselves unable fully to explain them: such is this power of hereditary transmission of peculiar tendencies, both moral and physical. Here Matter and Mind unite in a point which Science acknowledges to be beyond the reach of her microscopic vision. It is important to observe, however, that training counteracts propensity even in a dog, and though the education of a human being does not destroy bodily temperament, yet so long as the faculties are clear, it may always be subdued by superior motives. It is only the brutal part of man's nature that

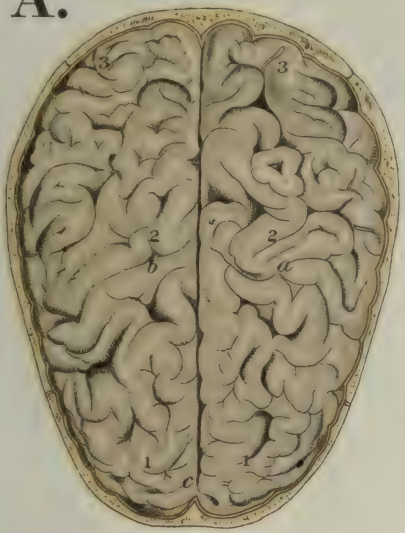
seems to be derived. Truth, knowledge, religion, are not propensities, but they are the correctors of all error. With their aid alone can we restrain and guide impulse to right ends; but, of course, the mind, that is not amenable to moral law, must be altogether subject to brute instincts, and ought to be treated accordingly—by physical restraints, and the removal of excitants.

S. T. Coleridge said, that the history of man, for the nine months preceding his birth, would probably be far more interesting, and contain events of greater moment, than all that follow it. Southey fancied that Coleridge was not in earnest in uttering this startling sentence, but, perhaps, the words convey too profound a truth for the doctor's former vision. Their meaning will shine out if we reflect on the influence which the mother's and the father's habits exert on the constitution molded *in utero*. There the groundwork of all history is laid in embryo, and the seeds of evil there begin to take root, and to vegetate in a genial soil, long before they open their leaves to the sky. The soil, indeed, alters not the nature of the seed, but vast is its effect on development, and no one can doubt that the state of the parent determines, in a large measure, the predisposition of the offspring. Every thing that can be classed with chemical agents must be material; but feeling, perception, memory, and will, are not in the list of elements. If, therefore, that which perceives and wills is not material, and yet has power to impress the brain of a parent, and to alter the condition of imperceptible atoms in his blood, so that the impressions shall be transferred to succeeding generations, it follows that the parent's state of soul has a modifying influence on the ovum, and in some measure determines its after development. It is, indeed, a wonderful fact, that the experience of the parent should produce such a bodily change in himself as to affect the future tendencies of his offspring. But so it is; each new individual inherits a predisposition according to the habits of those from whom he is derived, thus palpably proving the truth of that startling declaration: "I will visit the sins of the father on the children unto the third and fourth generation of them that hate me, and show mercy unto thousands of them that love me and keep my commandments."

Thanks be unto God, when good is brought into operation, the evil must wear out, but the good never. If goodness, that is, the obedience of faith, working by love, were not omnipotent, society could never be improved—for propensity to sin, or to act from selfish impulse alone, is physiologically proved to be unavoidable and irresistible, unless the spirit of holiness be imparted. But experience also demonstrates that immorality does not necessarily continue; the entrance of true light, through the mercy and goodness of God, gives new

# THE BRAIN AND THE NERVES.

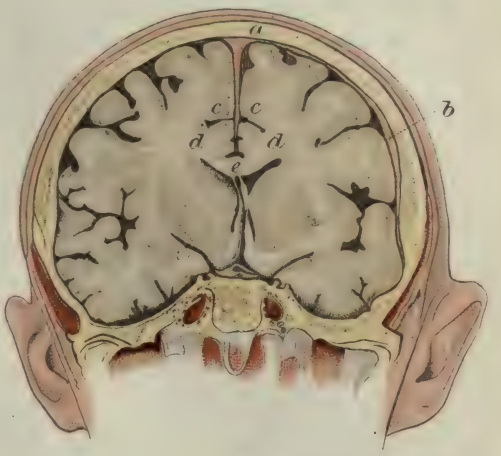
A.




**A**—The brain, as seen from above, after removal of the skull-cap.

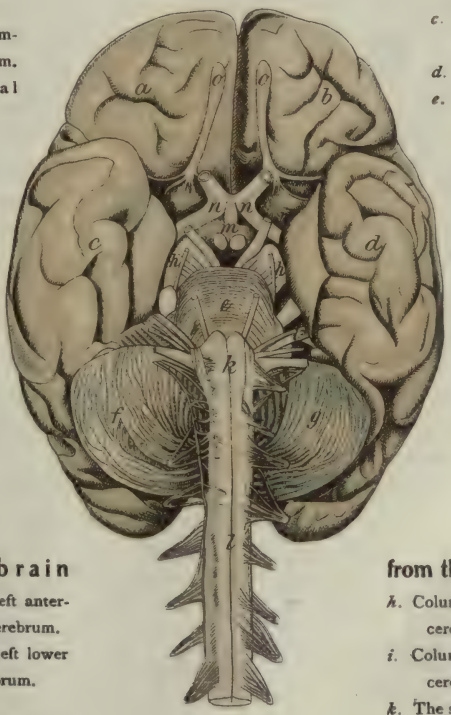
*a*. and *b*. Left and right hemispheres of the cerebrum.
*c*. The longitudinal medial band.
1. Anterior lobe.
2. Middle lobe.
3. Posterior lobe.

B.




**B**—The brain in the skull, in cross-section from right to left.

*a*. The skull.
*b*. The dura mater.
*c*. The hemispheres of the cerebrum.
*d*. The parietal lobe.
*e*. The beam.




C.

**C**—The brain from the lower side.

*a*. and *b*. Right and left anterior lobes of the cerebrum.
*c*. and *d*. Right and left lower lobes of the cerebrum.
*e*. Pons Varolii.
*f*. and *g* Right and left hemispheres of the cerebellum.
*h*. Column of pons leading to cerebrum.
*i*. Column of pons leading to cerebellum.
*k*. The spinal chord
*l*. Medulla oblongata.
*n*. The cross of the optic nerve.
*o*. The olfactory nerve.

power and direction to the soul; for then, under Divine encouragement, it looks by faith to Omnipotence for help, and finds it. The man whose heart is fixed in the worship of love, beholding the beauty of holiness as revealed in Immanuel, is no longer a selfish creature, of mere propensities and impulses. He dwells with God; therefore, whatever is not pure, is so far and forever hateful to him; for faith in the Divine Perfectness permits us neither to desire what is forbidden, nor to despair of what is desirable. One thought effects a total revolution in the soul. Eternal life absorbs the heart, and ceaseless prayer is the sole feeling of a dependent and yet full existence.

We cannot aim too highly, or hope too ardently, since the largeness of God's promises is proportioned to His power to bestow, and man's capacity to receive; therefore the prospects of the confiding spirit are as bright as heaven and as boundless as eternity.

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# ABORTION.

Abortion, or Miscarriage, means a woman losing her child previous to the seventh month of her Pregnacy; that is, before it is due time. When this occurs after that period, it is called Premature Labor. Miscarriage involves pain and weakness, in addition to the loss of offspring, and is often a severe trial to the maternal constitution. It may occur at any period of Pregnancy; but particular stages are more liable to the accident than others. These are generally considered to be about the time of the first Menstruation after conception; again at the twelfth week, and toward the seventh month; and the liability is increased at those times which correspond to the Menstrual period. When Abortion has once taken place, it is more likely to occur again. Some have so strong a tendency to it, that they never go beyond a certain stage, and then invariably miscarry. The cause of Abortion may exist in the constitution of the female herself, being the result of weakness and irritability, or of an overfull habit, or a diseased condition of the womb; or the fœtus, or child, may die, or be deficient in development, when it is cast off like a blighted fruit. Suckling, after conception has taken place, is not infrequently a cause of Miscarriage. Active diseases, occurring during Pregnancy, such as Fevers, severe Inflammation, Eruptive Fevers, etc., are almost certain to occasion the expulsion of the uterine contents. Continued Diarrhœa and the action of strong Purgative Medicines, particularly the Aloetic, are dangerous. This is a very good reason for those who are pregnant avoiding all quack aperient medicines; they almost all contain Aloes, and may be very injurious. All undue exertion or agitation of body or mind, sudden jerks or jumps, riding on horseback in the early stage, or in a shaking carriage, in the latter

stages of Pregnancy, may any of them bring on Miscarriage. To these may be added, exertion of the arms in doing any thing on a level above the head; costive bowels and straining consequent thereon; sexual indulgences, and luxurious habits. Those who have once suffered from Abortion, ought to be extremely careful during succeeding Pregnancies, and all ought to bear in mind the possibility of the occurrence. Women who have Syphilis usually have a number of Miscarriages or Abortions at various stages before bringing forth a still-born child, later a living child which dies soon, and perhaps followed by a child which though it lives had better be dead, for it is seldom strong and healthy, and often shows evidence of its parents sins ("unto the third and fourth generations").

The symptoms of threatened Abortion vary with the constitution. In the strong and plethoric it is often preceded by shivering and febrile symptoms, and by a feeling of weight in the lower bowels. In the weak there is languor, faintness, flaccidity of the breasts, general depression, and pains in the back and loins. Intermittent pains, and discharge of blood from the passage, signify that the process has begun. If Miscarriage occurs within the first month or two after conception, the process may be accomplished with so little inconvenience as to escape notice, and be mistaken for a Menstrual period; more generally, however, the severity of pain, and an unusual clotted discharge of blood, render the case evident. The pain, the discharge, and at the same time the danger of an Abortion, are in proportion to the advancement of the Pregnancy. When a Miscarriage goes on, the pains increase in force and frequency, and continue with a discharge of blood, in fluid or clots, until the ovum, or first formation of the child, is expelled; after which both become moderated, until they cease altogether, the red flow giving place to a colorless one. It is very important that those in attendance upon the patient should examine every clot that comes away; if large, tear it in pieces, that they may ascertain whether the contents of the womb are expelled or not — for there is no safety or rest where Miscarriage is progressing, until it has taken place and everything is cast off.

As soon as a female experiences threatenings of Abortion, she ought at once to retire to bed, upon a mattress, and keep perfectly quiet until every symptom has disappeared. Sometimes this simple measure, *promptly adopted*, is sufficient to avert the threatened evil. If there is much feeling of fullness, and the patient is of full habit generally, eight or a dozen Leeches may be applied to the lower part of the bowels; if there is fever, Saline medicines may be given, such as the common effervescing draught of Carbonate of Soda and Tartaric Acid, or Lemon-juice; or, if the bowels are much confined, Seidlitz Powders, assisting the action by Cold Injections, if necessary. When the pains are severe, particularly in the weak and irritable, twenty or thirty drops of Laudanum should be given, and may be repeated in a few hours, if the symptoms are not improved. In

the case of profuse discharge, the patient should be kept very lightly covered, movement avoided, and every article of food or drink given cold, or iced if possible, provided the vital powers are not excessively reduced; cloths dipped in cold, or Iced Water, should also be applied to the lower part of the body, and frequently changed; Acid Drinks, with Cream of Tartar, may be given freely. Ten or fifteen drops of Elixir Vitriol may be given, in a wine-glassful of water, every two or three hours. Should slight faintness come on, it is better not to interfere with it, but use outward remedies, Camphor, Cold Water, etc., as they may be salutary. If it reaches to an extent to threaten life, Brandy and Water, or other stimulants, must be used. Profuse and continued discharge, though it may not threaten life, must occasion a weakness which will take a long time to overcome, and which may ultimately, if not properly attended to, promote the development of other diseases of the womb.

The bowels will, in some cases, require strict attention, as indeed they do throughout. For this purpose Castor Oil is a good medicine, or injections of Cold Water, or Tepid Water, are most useful. A teaspoonful of Epsom Salts, dissolved in half a pint of Water, either cold or slightly warmed, to which add fifteen drops of Elixir Vitriol, forms a most excellent and mild purgative, which should be taken before breakfast. In all cases where the constitution of the woman has a tendency to Miscarriage or Abortion, a quiet state of mind should be observed, avoiding all violent exertions, particularly lifting heavy weights.

Three principles of treatment are to be kept in mind in the management of Miscarriage:

The first, to prevent it, if possible, by rest, opiates, etc.

The second, to allay pain, moderate the discharge of blood, and to save and support the strength of the patient.

The third, when Abortion must take place, to expedite the separation of the ovum, and free the contents of the womb. This is generally done by simply occasionally drinking cold water, and in difficult cases, if necessary, an anæsthetic should be given, and by means of proper instruments the uterus should be cleaned out. This is perhaps the best treatment in all cases.

The health of pregnant females should at all times be an object of great care and interest; and they should be impressed with the conviction that, while bearing the first child, they may, by proper care and attention, lay the foundation for their future health and that of their offspring; while by neglect and imprudence in this matter, they may not only enfeeble their constitution, but entail upon their children an inheritance of infirmity and disease.

Miscarriage, or Abortion, wich includes all cases in which delivery takes place before the sixth month, seldom occurs without being preceded, or accompanied, or followed, by a morbid discharge of blood from the womb,

which is commonly known by the name of Flooding. Abortion, or Miscarriage, takes place with the first pregnancy, and during the first two months; therefore, great care should be observed during this period, as any cause which either destroys the life of the child in the womb, or brings on morbid or premature contractions in that organ, may induce Miscarriage. Coughing severely, or vomiting, a blow or fall, or a misstep, leading to an effort to prevent falling, may and does frequently result in Miscarriage; and having once occurred, it is, without proper care, exceedingly liable to be the case at the same period of a subsequent Pregnancy. The same result may follow any vivid moral impression; for fright, or mental excitement by passion, or witnessing any accident, will be found often to end in Miscarriage. In some healthy females, however, it occurs without any other cause than mere fullness of blood. A bleeding from the womb is often in such cases a first symptom of Abortion, and should be attended to as early as possible before it goes to any considerable extent. The amount of Flooding, in most cases, is in proportion to the early period of Pregnancy at which it takes place, for in the latter month there is seldom much blood lost. But there are cases in which pregnant women will lose blood repeatedly from the womb and yet not miscarry, but these are very rare cases.

In most cases, the occurrence of Flooding between the first and fourth month, unless very slight, or quickly relieved, is usually followed by a Miscarriage; but as soon as the child and its membranes are both expelled by the contraction of the womb, then the Flooding soon ceases. In many such cases, it is often very difficult, and sometimes impossible, to deliver the After-birth and Membranes, which remain, and finally pass off after putrefaction has taken place, resulting in long and offensive discharges from the womb, and which, unless treated very skillfully, frequently result in many internal mischiefs of a serious character, such as Ulcers, Inflammations, etc.

In all cases, those who are constitutionally disposed to Abortion, or have a tendency to Miscarriage, should take great care to preserve a quiet state of mind, and to avoid all violent exertion. All active purgatives should be avoided, and exposure to great heat or cold, during the time of Gestation or Pregnancy.

When the Miscarriage has really taken place, and the fœtus or child is expelled, together with the contents of the womb, the same precautions should in general be observed as in Childbirth.

To prevent Miscarriage when it is threatened, or on the appearance of the first symptoms, the patient should lie down and be as quiet as possible; live on very light diet; bowels be kept freely open; and an injection of thirty drops of Laudanum should be given in half a pint of Slippery Elm Tea. Should Flooding be present, cold Lemonade should be drank freely, and cloths, wet with Cold or Ice-water, applied to the thighs and lower

part of the abdomen and birthplace, which should be repeated until the Flooding is relieved. The hemorrhage will usually not cease until the uterus is entirely empty, and often it is necessary to scrape the uterus out. This should only be undertaken by a competent surgeon, as in careless hands it would be attended with more or less danger.

MEANS OF PREVENTING ABORTION.—To prevent Abortion, women of a weak or relaxed habit should use solid food, avoiding great quantities of Tea, Coffee, or other weak or watery liquors. They should go soon to bed and rise early, and take frequent exercise, but avoid fatigue. If of a full habit, they ought to use a spare diet, and chiefly of the vegetable kind, avoiding strong Liquors, and everything that may tend to heat the body or increase the quantity of blood. When the symptoms appear, they should at once go to bed and take sufficient Morphine to quiet the pains and keep them quiet. A quarter of a grain may be taken at the first dose, an eighth of a grain is sufficient for subsequent doses. In both cases, the patient should sleep on a hard mattress, and be kept cool and quiet; the bowels should be kept regular.

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# MONTHLY SICKNESS, OR MENSES.

MONTHLY SICKNESS, medically called *Menstruation*, occurs in all normal women, from the age of fourteen to forty-five. It is the usual order of Nature, and essential to the reproduction of the human species. The blood discharged amounts to five or six ounces, and it continues from three to four days. The time of its appearance differs in different women, depending upon the constitution. Previous to the Monthly Sickness, pains are felt in the back and legs, and a kind of heavy feeling in the womb. Some women are very nervous and hysterical about this time ; in others, from the change of blood, the face becomes flushed, accompanied by Headache and Dizziness. Excitement, both of the mind and body, have a powerful influence over a woman's Monthly Sickness. Some girls menstruate earlier than others ; this is owing to the functions of the body, and their way of living. When girls take an active part in household affairs, and exercise in romping, playing, etc., the health, strength, and energy are greatly improved, and the Menstrual function becomes more healthy and regular. When Menstruation does not come on at the proper time, or is obstructed in its course, after it has been once established, exercise, fresh air, change of scene, everything which gives rest to the mind, and increases the circulation sufficiently to produce moderate perspiration, will greatly assist in restoring the natural Menstrual Discharge. The Menstrual effort is commonly preceded, in its first appearance, by a general uneasiness, pains in the back and hips, sickness at the stomach, and headache. In young persons, these

entirely new sensations often produce great uneasiness, and should lead them to seek maternal counsel. The breasts enlarge, or become the seat of uneasy sensations, and sometimes pain; a fullness is felt in the head, with a slight throbbing pain in the temples, and sometimes giddiness or swimming of the head; also pain in the back, a sense of fatigue in the loins, and a weight felt in the lower part of the abdomen. In full-blooded individuals, there may be a bleeding at the nose accompanying these disturbances of the usual health. The bosom becomes enlarged and the whole form rapidly develops itself. After more or less of these sensations, in healthy females, a few drops of reddish colored fluid, resembling blood, will escape from the womb, affording her immediate relief, even though the quantity be small, and though it may only continue for a few hours. Her usual health now returns. In about four weeks a similar train of symptoms occurs again, attended by a longer flow of blood, and of longer continuance than before, which then becomes periodical or monthly, returning every four weeks, and is called the Menses or Courses. The establishment and regularity of this discharge in young females is essential to their health. The period of life when it first appears is always a critical one, and calls for the care and attention of mothers.

From a variety of causes, the womb may fail to take on this its proper function, although the age has fully arrived at which it should be expected. It may happen, although the discharge may have commenced, or occurred once, that several months may elapse before it appears the second time. In such cases, if the female continues to enjoy uninterrupted good health in other respects, there is no reason for alarm or anxiety; nor should any interference with the course of Nature be adopted or permitted, for several months at least, so long as the general health remains good. But this Monthly Discharge being indispensable to health, at this period of life, cannot be retained or suppressed for many months without impairing more or less the general health, and perhaps destroying the constitution. A retention of this discharge, or non-performance of the proper functions of the womb, often results, in young females, in a train of symptoms which generally ends in what is called

## GREEN SICKNESS, OR CHLOROSIS.

When this is the case, the girl becomes pale, or of a greenish pallor, and her face more or less bloated; she feels feeble, dull and drowsy; her stomach is out of order, accompanied by acidity, or sour belchings, flatulence or wind, occasional nausea or vomiting; palpitation of the heart; and finally the nervous system becomes deranged, often resulting in fits of melancholy. Her feet and ankles often become swollen, especially toward night, showing a tendency to Dropsy; her sleep is restless and disturbed; often craving

unnatural food, as Clay, Chalk, and the like. The bowels are usually costive, sometimes attended with griping pains. If the derangement is allowed to continue, the lungs are apt to become affected, and the foundation for Consumption may be laid. Occasionally the face will become flushed, attended with pains and fullness in the head, pain in the back, and in the region of the womb. These symptoms, however, are indications that Nature is endeavoring to bring on the discharge, and should be assisted by proper remedies, as will be hereafter directed. Should the obstruction continue, the skin finally becomes of a dusky yellowish-green color; the breathing short and hurried on the slightest effort, and great agitation is felt on the least alarm. The mind often becomes depressed, and other hysterical symptoms occur, followed, perhaps, by a gradual wasting away of the flesh, terminating in Consumption, Dropsy, and Death.

Sometimes such cases, arising from a retention or suppression of the Menses, depend upon some original defect in the constitution, or some diseased condition of the body, organic or functional, which prevents the womb from performing its appropriate office; but, in most cases, exposure to cold, wet feet, damp air, check of perspiration, and the like, at an improper time — at the critical time when the Menses are in progress, or about to commence — will be found to be the prolific cause. For want of proper care or attention — often from ignorance — at these critical seasons, the Menses are suddenly stopped by getting the feet wet, or cold, or by taking a sudden cold in some other way, so that it frequently happens, when the next monthly period arrives, there is a complete suppression of the discharge; and, if neglected, the suppression may continue until the disease, known as Chlorosis, or Green Sickness, is fully established. This disease may be brought on at any time, even after the Menses or Courses have been established regularly for years. In such cases, it will usually be found to depend upon taking cold at an improper time, causing a stoppage of the discharge, and upon a want of proper treatment afterward. Thousands of lives are made wretched every year from ignorance or inattention to this important matter! Sometimes, perhaps, several months may pass, without any show or discharge, and yet the general health may not seem to be seriously affected; but invariably, after a longer or shorter time, if such obstructions are allowed to continue, they will result in great mischief to the constitution, and lay the foundation for incurable diseases.

As has been said, it generally occurs in young girls, and may be owing to an inability in Nature to fully develop or continue the Menstrual Discharge, or where, as is most commonly the case, no doubt, the girl has been neglected or improperly treated at this most critical time in her life. In cases of this kind, forcing medicines, that is, active Emmenagogues, will not do, as in cases of temporary or recent suppression; or at least they must be but secondary in the treatment, and either not used until after other remedies of a restorative and strengthening character are used, or else

in conjunction with them. While the constitution and nervous system are greatly enfeebled, and the whole system of the female organs is out of order, there is, in nearly all cases, a deficiency of red blood in the circulation. Tonics, Restoratives, and Chalybeates or Iron Preparations, are the remedies indicated, with exercise, pure air, and due attention to the skin. Where it is practicable, traveling and change of scenery and associations, will be of great advantage. Free exercise in the open air, as riding on horseback, and daily ablution of the whole body, with severe friction or rubbing, are of the utmost importance. Many physicians think the Green Sickness (Chlorosis) is a disease of the blood, and when this is cured the Menses will return, in other words, the Chlorosis is the cause of the cessation of Menstruation, not the result. (See Diseases of the Blood.)

Treatment.— Ordinarily, where the Menses are regular and healthy, no medical treatment is necessary. It is a natural discharge, and needs no treatment. It is always necessary, however, to observe due caution against exposure and taking cold during the period of the discharge. It may often be well to make use of some proper and mild means to aid Nature in her work, such as bathing the feet in Warm Water, especially at night, on retiring. This will often aid and also guard against taking cold. It is sometimes the case, however, and especially with some women, that this natural and necessary discharge is far from being a trifling matter; but, on the contrary, is so painful and profuse that it is always looked forward to with the greatest dread.

As internal remedies, take the following: Tincture of Myrrh, Tincture of Aloes, Tincture of Blood Root, and Muriated Tincture of Iron, each, 1 ounce; mix, and take a teaspoonful three times a day; also, pills composed as follows: Take Sulphate of Iron (powdered, and exposed to the air till it becomes dry and white), 1 drachm; Quinine and Gum Myrrh, each, 30 grains; Podophyllin, 20 grains; make into 60 pills, with Extract of Gentian, and take one pill night and morning. If you cannot get the Podophyllin, take 60 grains of Aloes instead. Should the pills operate too much on the bowels, take but one a day; or omit them altogether for a few days at a time. A better preparation is a pill or powder composed of a grain or two of Saccharated Carbonate of Iron and a sixtieth of a grain of of Arsenious Acid. Such a pill may be taken three times a day after meals.

Sometimes the hymen is imperforate and prevents the escape of the discharge, which is then dammed back and produces serious trouble. The mother should know the condition of her daughter's Genital Organs, and if there is such an obstruction, a surgeon should be consulted.

# DISEASES OF THE WOMB.

## DYSMENORRHEA, OR PAINFUL MENSTRUATION

Is simply what the name indicates — *Painful Menses* — often very profuse, sometimes flooding; severe bearing-down pains, somewhat like the pains of childbirth; and lasting, frequently, for several days. It is owing, undoubtedly, to a diseased action of the uterus or womb, and dependent, perhaps, upon various causes. In some females, it appears to be constitutional; for, in some families, all the females for successive generations have suffered more or less severely at their monthly periods.

In cases of this kind, treatment is necessary. It should be commenced before the menstrual discharge begins, or at least as soon as the premonitory symptoms are felt. The feet should be bathed in Warm Water, as hot as can be borne, and if the patient use the warm Hip Bath, at the same time, which should be as hot as can be borne, it will be all the better. Other means are to be employed to mitigate the pain and suffering during the attack. An active Cathartic should be taken, as soon as the first symptoms are felt. This should be the first thing done. The following recipe will answer the purpose well: Take pulverized Aloes and Gamboge, each, 30 grains; Podophyllin, 20 grains; Cayenne, 10 grains; make into 30 pills, with Mucilage of Gum Arabic, and take three pills. If Salts are preferred, they may be taken instead, and are often more satisfactory. These will generally operate speedily and thoroughly, while at the same time they exert a special and very beneficial effect upon the uterus. After the pills have operated, to relieve the pains, in addition to the Foot and Hip Baths, apply Hot Fomentations of Turpentine to the lower abdomen.

After the attack is over, and during the interval previous to the next expected period, such remedies are to be made use of as will be calculated to remove the difficulty or modify the severity of the succeeding attack. Usually some distinct cause exists which induces Painful Menstruation, such as misplaced uterus, or one which is inflamed. A skillful physician should be consulted, and if he deems it necessary, and it usually is, a thorough examination should be made. It is a false modesty which causes a woman to refuse to be examined by a reputable and legitimate physician; however, for her own sake, and that of the physician, it is best that she should be accompanied by a friend of her own sex. Sometimes a simple operation will often entirely remove all the pain which has accompanied Menstruation.

The bowels should be kept open and in a good condition, by occasionally taking a dose of some good Vegetable Cathartic Pills. The surface of the body should be bathed daily and rubbed well, so as to keep the skin in a healthy condition, for much will depend upon a free and healthy action of

the perspiratory organs. The diet should be plain, nutritious, and of easy digestion. When the monthly period comes round again, make use of the means recommended for an attack of Painful Menstruation, more or less vigorously, according to the symptoms, and then pursue again the course here recommended, as intermediate treatment.

## MENORRHAGIA.

THE excessive or immoderate flow of the Menses, is medically termed *Menorrhagia.* This condition is always the result of some definite cause, which being removed cures the condition. There are usually exciting causes beside the disordered condition of the Genital Organs. Excitement, over-exertion, and exposure to damp and cold are the chief exciting causes; of the real causes inflammation of the Generative Organs, Polypi or Tumors are among the commonest. It is readily seen that Menorrhagia is a symptom of a disease and not in itself a disease. To determine where the difficulty is a thorough examination is necessary; oftentimes the matter can be righted with but little difficulty. Drugs are of little value, and at least should not be taken until the cause of the difficulty is known.

## AMENORRHEA.

THAT is, No Menorrhea, or Suppressed Menses. This condition is the symptom of some disease, either general, as Anæmia or generally lowered vitality, or local disease of the Generative Organs. It may indicate some serious disease, or it may suggest Pregnancy.

Drugs should not be given until the cause is known, and this can only be determined by a properly trained physician after a thorough and careful examination. A surgical operation may be required or simply the judicious application and use of tonics, including Iron, may be all that is necessary. *Do not* take Tansy Tea or Pennyroyal Pills, and like preparations until the cause is positively known, for these drugs have caused far more harm than they will ever do good.

When the expected time arrives for the Menses to appear, and Nature seems to be making an effort to bring them on, which will be known by such symptoms as headache, pain in the back, loins, and limbs, weariness, pale countenance, with occasional flushes on the cheeks, irritable temper, capricious appetite, etc., additional means should immediately be made use of—such as bathing the feet and legs in Warm Water, sitting over the steam of Hot Water, etc.; and if the bowels are costive, a brisk and active Cathartic should be taken, composed of Aloes, Gamboge, and Mayapple Root, or Podophyllin, such as recommended in case of Dysmenorrhea.

# FLOODING.

An excessive flow of the Monthly Discharge is called Flooding. Excessive discharges of the Menses may occur in various ways; may return too frequently; may flow too copiously, amounting to profuse bleeding from the womb, when not infrequently clots will be mingled with this excessive flow or discharge; or they may come on at unusual periods, during Pregnancy and Suckling. Much, however, depends upon the constitution of the woman, and on climate — what would be natural Menstruation in one, would be profuse in another; and so in regard to climate — what would be profuse in a cold climate, would be only natural in a warm one.

There are three distinct forms under which this affection manifests itself, each of which has its acute and its chronic peculiarities. In the first form, the discharge is of the natural appearance and quality, but the quantity or frequency of its occurrence is greatly increased. In the second, the discharge is very considerable, and mixed with clots of blood. In the third, the loss of blood is sometimes very great, and attended with marked changes in the size and position of the womb — a circumstance which does not take place in the two former.

The first usually comes on with a sudden flow of blood from the womb; after a short time it stops for a few hours, or probably a day or two, and then recurs again. It may come on and stop again, for a number of days. Sometimes the discharge is regular in its return, but lasts twice or three times as long as it should remain on. In other cases, it is not usually large, but returns every two or three weeks, instead of coming on at the proper time or period of four weeks. This form of the disease, or menstrual discharge, often occurs in young and even married women, and is generally accompanied, during the intervals, with that troublesome complaint, the Whites, medically called *Leucorrhea*.

The second form of the disease differs from the first, in a larger amount of blood being discharged in a given time, and in the formation of clots, which are mixed with the natural flow or secretions. This does not usually take place with women who are under thirty years of age; but in women between thirty and forty, particularly those whose constitutions have been injured or weakened by Child-bearing or Diseases of the Womb. This complaint comes on gradually, one or two small clots appearing at first, which is probably but little noticed, and then in the next period appearing in much larger quantities. After continuing in this way for some time, the loss of blood will probably increase, or become so great as to produce feelings of exhaustion or weakness, and not infrequently fainting.

The third form in which this complaint exhibits itself, and which is much the most severe, is in women who are from forty to fifty, when the Menses or Courses are about to cease. The symptoms in such cases, both

general and local, are much more severe than in the two former; the womb is more or less disordered in its structure and position, and the case is much more difficult. No woman, let her constitution be strong or weak, is exempt from it. It may attack the strong or plethoric, or the weak or debilitated, or the melancholic or the woman of sanguine temperament.

Some degree of irregularity of the Menses, either in time, quantity, or duration, and the Whites during the intervals, generally precede the attack.

Usually the natural discharge appears first, and continues about twenty or thirty hours before the clots of blood begin to be expelled. These clots are sometimes of a dark appearance, and of an offensive smell. The quantity of blood lost by some women is very great, producing extreme weakness, and not infrequently causing serious alarm and apprehension from the quantity of blood discharged. The first attacks of Flooding in this manner generally last from six to ten days; but if the disease is of long standing, they may continue two, three, or even four weeks, almost without stopping. There is generally at this time a difficulty in passing the urine or water, the bowels are costive or bound, the appetite fails, the surface of the body is pale, the whole system is feeble, and the general health suffers severely. The patient may for a time improve, but any exertion or excitement, either of mind or body, may suddenly produce a relapse or return of the complaint.

The principal cause of this form of the disease, and the various changes produced in the system, is a congestion or over-fullness of the blood-vessels of the womb. There may be a Chronic Inflammation of the Womb; Polypus of the Womb, Tumors of the Womb, and numerous other more or less serious diseases of the womb, and surrounding organs, which may cause excessive flowing, and of which diseases the flowing is a symptom.

The general symptoms, which are similar in all the forms of this disease, are great weakness, exhaustion, dragging and sinking, pain across the hips and loins, a dislike when sitting to rise up or to use any exertion, paleness of the face, headache, beating or throbbing of the temples, ringing in the ears, giddiness or swimming of the head, and frequently feverishness, irritability, and a deranged state of the stomach and bowels. In some women the nervous system is greatly affected, and the mind gloomy or depressed. In the more aggravated forms, there is much pain in the side, extending round the lower part of the belly; the headache is very severe; and the least noise or any unusual occurrence produces an effect on the nervous system, with feelings of great prostration, faintness, and change of countenance. Not infrequently this disease is accompanied by swelling of the feet and legs, and Diarrhœa.

The blood in this disease is altered and weakened; and this change or weakness predisposes to still greater Flooding. Among the causes producing an excessive flow of blood from the womb, are frequent and excessive indulgences, cold, over-exertion, mental emotions, frequent child-

bearing, over-nursing, change of clothing from warm to cold, wet feet, atmospheric changes, over-heated rooms, or exposure at the period of the Menstrual Discharge.

From these various causes is frequently produced a relaxation of the passage, and the consequence is often a Falling of the Womb, or Prolapsus, and not infrequently Sterility, or Barrenness, and sometimes a predisposition to Abortion or Miscarriage.

In the cure of *Menorrhagia*, which means an immoderate flow of the Menses, the first step to be taken is, if possible, to remove the cause, for, without this, success cannot attend your efforts to cure it, however well-directed.

During the continuance of the discharge of blood, particularly if it be severe, the woman should be kept perfectly quiet in bed. The clothes should be light and loose; drinks cold, such as Lemonade, Cream of Tartar, or Tamarinds and Water, or Cold Water, or a few drops of Elixir Vitriol in a tumbler of water.

The woman's strength should be always supported with light, nutritious diet. During this period, occasionally, the moderate use of Port Wine, will be of benefit to sustain her strength. A wine-glass full of water with ten drops of the Tincture of Iron, which may be obtained at any drug-store, given three times a day, will be found a most valuable tonic or strengthening medicine, and will contribute greatly to a permanent cure, with moderate exercise, riding in a carriage, change of climate, sea-air and sea-bathing, where convenient, and change of scene by traveling; for the mind has great influence in assisting the remedies before mentioned. When this disease, or Flooding, takes place in women of debilitated constitutions, in whom every portion of blood discharged more than the usual quantity results in continued weakness and other diseases of debility, such persons ought always to resort to stimulants or tonic medicines. In persons of full habit of body, where Flooding does not go to too great an extent, in such cases it may be allowed to go on as a salutary relief. When, however, it becomes so free as to act directly upon the strength, it should be immediately attended to. In the event of the case being a severe one, blood and clots being passed away in quantity, the services of a competent physician should at once be secured. Women of a full habit of body ought, in such cases, to live on light, cooling diet, avoiding animal food altogether. Stimulants of all kinds should be avoided. Early rising, with active exercise, and the bowels being kept freely open with a teaspoonful of Epsom Salts, taken every morning in half a pint of water, with, if necessary, ten to fifteen drops of Elixir Vitriol, will be found greatly to relieve these profuse attacks of Menstruation.

The decline of Menstruation usually occurs about thirty years after its first establishment; the time, however, varies in different women, depending entirely on the constitution, habits, etc. This period is, and always is,

regarded by females themselves as a critical era in their lives. With the cessation of Menstruation, the capability of Conception also ceases. Such an important change cannot take place without causing some constitutional disturbance. In some, it is comparatively trifling; in others, accompanied by affliction and illness; in some, from having lived a too luxurious life; perhaps, in others, from privation and over-work. Let this, however, be as it may, the health at this time should be carefully watched in all cases, and any symptoms of disease at once attended to. As might be expected, irritations of the nervous system, hysterical and hypochondriacal, and a variety of other disorders, are apt to occur during this change of woman's life. In the fat or corpulent female, it is attended by plethora or over-fullness of blood, causing Headache, Apoplexy, Spitting of Blood, Piles, etc. And, lastly, Cancerous Diseases of the Breast and Womb not infrequently show themselves for the first time at the cessation of the Menstruation, or at this change of life.

In some, Menses may at first only be diminished in quantity and become irregular in their recurrence, gradually ceasing altogether, without constitutional disturbance; but such instances are rare; more frequently the flow is so scanty that giddiness or pain in the head, dimness of the eyes, and a sense of fullness of blood, render it necessary to abstain from food, and take purgatives, so as to open the bowels freely. In such cases, Epsom Salts are best, as they not only act as a purgative, but cool the whole system generally.

In other cases, the cessation is sudden, and after continuing thus for a few months, the discharge takes place so largely as to exhaust the strength, and require to be stopped by cold applications and astringents, as before mentioned. The compound Colocynth Pill, which can be obtained at any drug-store, may be safely used with great benefit in such cases.

It is unnecessary to dwell further in this connection upon the frequent and various causes of this disease. In some females it is constitutional, and would seem to be hereditary, for in particular families all the females of successive generations seem to suffer more or less severely at their Monthly Periods. The pain in this form of disease is often acute and distressing in the highest degree, and especially in the back and loins. This malady, as well as that which has its origin from exposure to cold, is, in many cases, a Rheumatism of the muscular tissue of the womb and adjacent structures, and may be relieved by the treatment recommended in Rheumatic affections seated in other parts.

In closing my remarks on this important subject, let me urge upon you to aim at restoring the general health, and improving the digestive organs particularly, which, in cases I have described, will often sadly suffer; indeed there are no cases which more imperatively call for strict and unremitting attention to the general health.

All disorders of Menstruation are symptoms of trouble somewhere, and the sooner this is attended to the easier to cure, and the more permanent are the results. The cause must be ascertained and then removed.

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## FALLING OF THE WOMB.

The Womb is medically called the *Uterus*. This most important organ is situated in the pelvis, between the bladder and the rectum. It is in the shape of a common pear, a little flattened. Its length is about three inches, the breadth in the middle is about two inches, and the mouth about one inch. The upper part is called medically the fundus; the middle, the body; and the smallest, the cervix or neck. The fundus is the upper part. The cavity of the womb is small at the entrance, and gradually enlarges to the fundus or upper part, where it expands into a triangular chamber, out of which proceed the Fallopian tubes—two ducts, about three inches in length, which communicate with the ovaries. The internal surface of the womb is corrugated at the entrance, but smooth in the fundus or bottom. The womb is abundantly supplied with blood-vessels and nerves, and its walls always preserve the same thickness, both in pregnancy and in the virgin state. The Fallopian tubes terminate in a kind of fibrous fringe, called medically the *fimbriæ*, or fringe. The womb is suspended by strong ligaments from the brim of the pelvis; but these often become relaxed or weakened in consequence of general debility and local irritation, when a Falling of the Womb takes place.

The affections to which the womb is liable originate more or less from Pregnancy, or some local constitutional inflammation, as Congestion of Blood, Enlargements, Tumors, and Polypus; and diseases of its neck, including Cancer, etc. It is also exposed to displacements from before or backward, or the reverse, and more frequently to a *falling down*, or, as it is medically called, *Prolapsus Uteri*. The latter occurrence is the most usual after the time of Child-bearing is past, particularly in women who have borne large families, and especially in those who have neglected themselves, after their confinement, by getting up too soon. It is, therefore, a frequent complaint among poor women, who are often compelled from their circumstances to labor too soon. The Falling or Prolapsus of the Womb is permitted by a general laxity or weakness of the parts, but especially of the ligaments or elastic cords, which ought to retain it in its place. Pulling on the umbilical cord to aid in removing the Placenta is a common cause.

Falling of the Womb is a disease very often originating from the Whites, and generally occurs in women of delicate constitution and debilitated habits, although it may take place in the most healthy and plethoric. In its early stage it is accompanied only by a sense of bearing-down, with severe

pain in the back, especially when standing or walking, which sensations are relieved by lying down. After a night's repose, the woman gets up in the morning quite well, but on the least exertion or walking, the pain and bearing-down again return, and the Whites make their appearance. Nervous and dyspeptic symptoms come on, with lowness of spirits, costiveness, and difficulty of making water, or frequently arising in the night and discharging the urine in small quantities.

The Falling of the Womb, in some cases, arises from accident, as a fall, or straining in lifting; from tight lacing; fatigue in walking or riding; not infrequently from distress of mind and various other causes which affect the nervous system. When there is a Falling of the Womb, the pain is generally severe in the lower part of the stomach, back, and hips; and not infrequently the bladder and bowels discharge, without power to control their contents.

If the Prolapsed Womb has fallen very low, so as to protrude externally, the woman becomes faint, and the nervous system is greatly affected. In Pregnancy, especially, the Falling of the Womb is often the result of permitting the bladder to become unduly extended, or over-full, so that, by its weight, it presses the womb out of its place. I knew a case of this kind in a lady who was confined on the cars for several hours, there being no convenience or room appropriated for this purpose, which resulted in a distended bladder, so that the womb became seriously affected. The Diseases of the Womb may, of course, develop with greater or less rapidity; some are sudden in their onset, and urgent in their symptoms; others arise almost imperceptibly, and go on slowly. In most cases, however, there is a sense of uneasiness and dragging weight about the parts, perhaps actual pain of more or less severity. Under severe circumstances, discharges of blood or matter may take place. (See Menstruation, Whites, etc.) The constitution may sympathize more or less, and Irritability or Fever may arise, or obstinate Vomiting or Dyspepsia, with excessive Nervous Irritability and Hysteria.

When symptoms like the above described show themselves, or if there is much pain, and especially any feverishness, the woman should at once rest in bed as much as possible, in a horizontal posture, with the hips elevated. If the pain increases, and especially the fever, Fomentations or Warm Bathing should be applied to the lower abdomen and birthplace. When the suffering is great, give ten to twenty drops of Laudanum in a little water, or give an injection, in which put a teaspoonful of Laudanum. At the same time always pay strict attention to regulating the bowels, so as to prevent their being costive or bound, by means of Castor Oil, or, in one of full habit, Salts and cooling Saline Medicines; but all preparations containing Aloes must, under all circumstances, be avoided. Injections of Cold or Tepid Water are often useful. The diet must be regulated according to the habit and constitution of the woman.

If the womb has fallen very low, it may be necessary to replace it by pressing it gently with the finger, upward and backward; but in performing this operation, which should be done with much care, the finger must be well greased or oiled, and the pressure gradual. In some cases, however, though very seldom, the whole womb escapes from the body and protrudes between the thighs. To replace it at once may be difficult, as the inflammation and swelling may prevent it. In such instances, Ice Water, and Cold Compresses may be applied until the pain and swelling subside, when it will be easy to replace the womb in its natural position by gentle efforts, made with the hands, previously greased or oiled, the woman being placed upon her back in bed, and the thighs being elevated. In such cases, the services of an experienced physician should be secured, as it may be necessary to empty the bladder by an instrument called a catheter, two or three times a day, and the bowels are to be attended to by injections. The woman, in such cases, should remain in bed for a week or more.

After the womb is replaced, great care should be taken for some time to prevent a relapse. If this disease has been of long continuance, or is apt, on walking, or by any fatigue or exertion, to return, or come down, which is frequently the case, much benefit will be found by the use of cold injections up the birthplace, or bathing regularly with Cold Water. Females will most generally experience much comfort from wearing what is called an Abdominal Supporter, which consists of a bandage made of elastic materials, with springs, straps, and pads, fastening around the body, which gives great support to the womb, and prevents it from slipping or falling down. This supporter can be procured at any of the surgical instrument makers in our various cities. In the weakly and debilitated, this supporter, especially if properly fitted, will, under most circumstances, afford great relief, and should be obtained without delay.

In some affections of the womb, it becomes absolutely necessary for a medical man to resort to means of examination, which, though they cannot fail to be highly repugnant to the feelings, no woman of truly delicate and pure mind would object to, when it has been fully explained to her by a professional attendant, in whom her confidence is placed, that such examination is positively required. It may have frequently occurred that these examinations have been unnecessary, or the physician been led, from his zeal in such cases, to disregard, perhaps, too much the feelings of women suffering from these peculiar diseases of the womb. It should, therefore, be the duty of every feeling and sensitive heart, in these delicate investigations, to exercise every tenderness which affection and modesty require, remembering that their own dear mothers, and sisters, and daughters, may be liable to similar afflictions.

In all cases of Falling of the Womb, it will be proper and beneficial to make use of astringent injections in the vagina, by means of a syringe. A weak warm solution of Permanganate of Potassium is a good injection;

or a weak Salt solution may be used if the former cannot be obtained. Use the injection twice a day. If the womb will not keep its place, after being properly replaced, it becomes necessary to wear a *Pessary*, an instrument or rather support, made for this special purpose ; there are many forms of this supporter, and it should be left to the judgment of the physician just which form is suitable in any particular case. They should not cause any great discomfort, and in case they do another size or shape should be tried. Of course it should be left for the physician to put it in proper place. With a properly-fitting Pessary, and the free use of injections or vaginal douches, as they are called, all but the most severe cases may be cured. Some few cases may require a surgical operation before relief can be obtained. If Inflammation of the Womb also exist, as is often the case, to some extent, make use of additional means, such as are recommended in " Inflammation of the Womb," as the case may seem to require.

One of the most valuable means of relieving the unpleasant symptoms that attend this displacement, and also of aiding the permanent cure, is the wearing of a properly made Perineal Supporter. Any woman who can properly fit a dress, can make it. First, make a bandage of strong drilling, eight inches wide, cut so as acurately to fit the hips and lower part of the abdomen, lacing up in front like a corset ; putting in whalebone in front and behind to keep it from wrinkling ; sew on buttons before and behind, six inches apart, to attach the perineal bands, which may be made of drilling, but good, strong elastic suspenders are better. Lace the bandage on, buttoning the suspenders on behind ; bring them between the thighs, and button them sufficiently tight in front. Where they cross between the passages, sew on a pad half an inch thick, which will press up the Perineum, and give the needed support.

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## INFLAMMATION OF THE WOMB.

Inflammation of the Womb will be known by a continuous burning pain in the region of that organ, with a sense of weight; and often darting, or shooting pains extending out toward the sides of the lower abdomen. Sometimes even the whole abdomen becomes exceedingly painful, and not infrequently swollen, hot, and painful to the touch. The bowels are apt to become constipated; the urine suppressed or retained; the tongue dry and furred, and the pulse frequent and excited. There may be more or less of a discharge from the vagina.

Inflammation of the Womb may be caused by severe protracted labor during confinement; by retention of the Placenta or After-birth; sudden check of the Lochial Discharge, or of the Menses; by external injuries; cold; the use of ill-fitting Pessaries; by Falling of the Womb, and by Gonorrhœa.

TREATMENT.—One of the first things to be done in Inflammation of the Womb is to evacuate the bowels, by means of cooling Hydragogue Cathartics. A brisk and active purgative should be given, Epsom Salts, half an ounce, with a teaspoonful of Tincture of Cardamom, and a drop or two of Oil of Anise is, perhaps, the best, though any good Cathartic may be used. If the bowels are much constipated, the action of the Cathartic should be aided, or at least the lower part of the bowel, or rectum, should be evacuated by means of repeated injections, such as Warm Water, with a little Salt in it, and a small portion of Glycerine; or anything calculated to remove the hard fecal matter, before the Cathartic begins to operate, After the Cathartic has operated, give a dose of Castor Oil and Spirits of Turpentine; a tablespoonful of the former and a teaspoonful of the latter.

Mustard Drafts, or Hot Fomentations of Bitter Herbs, should be applied to the lower abdomen, over the region of the Womb. It is a good plan first to apply a large Mustard Plaster, and after it has remained as long as it can be borne, remove, and in a short time apply Warm Fomentations. Besides the fomentations, hot vaginal douches should be given ; the patient should lie on her back across the bed, so that her hips, which should be elevated upon a pillow, are at the edge of the bed. The pillow, and edge of the bed should be protected from wetting by means of rubber cloth or oil cloth in such a manner that the water will all drain into a pail, on the floor beside the bed. The fountain syringe holding two quarts or more of water, which should be as hot as can be borne, and to which a little — a teaspoonful, of salt has been added, is then suspended near by at such a height as to give sufficient pressure; the stream is now allowed to run into the vagina. This douching should be repeated two or three times a day if the inflammation is very intense. A married woman should take such a douche two or three times a week whether she be perfectly well or not, simply as a matter of cleanliness.

The bowels are to be kept loose by repeated doses of the Hydragogue Physic — any good, active, Vegetable Physic, with a teaspoonful or two of Cream of Tartar — at least every second or third day ; and as often a dose of Castor Oil and Turpentine should be taken, especially if the inflammation is severe ; also continue the Fomentations.

If there is much general excitement, and fever, give occasionally, say every three hours, a dose (about ten grains) of Dover's Powder ; and if there be a retention of the urine, or it is high-colored, the patient should drink freely of cooling drinks, or of plain cold water, and every hour or two take a teaspoonful of Sweet Spirits of Niter in a little Spearmint Tea. If the patient can sit up, the Warm or Tepid Hip-Bath, for half an hour at a time, will be found serviceable.

Should it be found that the Warm Fomentations, after trying them for a sufficient length of time, do not afford the desired relief, change to Cold Applications, by applying cloths dipped in Cold Water. I have known the

happiest effects produced by the use of Cold Water applications, in such cases. Renew the applications every hour or oftener, or as often as they become hot and dry.

A douche composed of a hot, mild solution of Bichloride of Mercury (one part in ten thousand of water) may be used instead of the plain water or Permanganate douche. All families should possess a douche bag or fountain syringe.

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## CHRONIC INFLAMATION OF THE WOMB.

When Chronic Inflammation of the Womb exists, the Warm Hip-Bath daily is recommended, and the constant use of the hot vaginal douche, as above described. Usually, Chronic Inflammation of the Womb is more intractable than the acute form, and the only thing in some cases that will produce a cure is to scrape out the inside of the uterus, to remove unhealthy mucous membrane or any foreign material or discharges which may be present. This operation requires an anæsthetic, but in the hands of competent physicians is accompanied with little or no danger. Not only does this method of treatment promise complete cure, but also comparatively rapid cure, and in a majority of Chronic cases of Inflammation of the Womb we highly recommend it. At the same time the bowels should be kept open by proper medicines and by injections, technically called enemas, and also in most cases tonic medicines are required, such as the Elixir of Iron, Quinine, and Strychnia.

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# DISEASES OF THE FALLOPAIN TUBES AND OVARIES.

The Ovaries are two glandular organs about the size of small hickory nuts, lying on either side of the uterus or womb, and indirectly connected with it by the Fallopian Tubes. The Ovaries are the organs in which the ova or eggs are formed, and the Fallopian Tubes conduct these ova to the uterus.

Both Tubes and Ovaries are liable to Inflammations, Congestions, Abscess Formations, or Tumor Growths.

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## INFLAMMATION OF THE OVARY.

Inflammation of the Ovary is caused by abscesses in the tubes, by inflammation spreading from an already inflamed uterus, or other adjacent parts. The symptoms are pain on one or both sides of the abdomen, low down; this pain may extend down into the hip or thigh. It is intensified

by standing or walking, and by an approaching Menstruation, and is more or less relieved when the flow is established. In the early stages, Menstruation is increased or prolonged; in the later stages diminished or suppressed. Besides these, the general health is impaired.

The treatment consists of rest in bed, Hot Fomentations over the lower abdomen, doses of Salts sufficient to produce a watery stool daily, aided with a Glycerine enema and, finally, hot vaginal douches. If the temperature is high, pulse weak and rapid, and there are symptoms of Peritonitis, an operation may be required.

Turpentine stupes may be used from time to time instead of the Hot Fomentations; the diet should be liquid.

## CYSTS AND TUMORS OF THE OVARY

Are more or less common, the causes being unknown which result in this formation and growth. Ovarian Cysts sometimes grow to be of great size. The treatment consists in removal by surgical operation.

## TUBERCULOSIS OF THE OVARY.

This disease usually exists in people of a Tuberculous family and tendency, so that a person of such tendencies suffering from symptoms of Inflammation of the Ovary has usually a Tuberculosis of the Ovary. The only treatment is to remove the diseased organ.

## ABSCESS OF THE FALLOPIAN TUBE.

Pus in the Fallopian Tube is usually the result of Gonorrhœa, catching cold, excessive intercourse during Menstruation, Tuberculosis, or Syphilis. The symptoms are much like those of Inflammation of the Ovaries; there is pain on pressure over the lower part of the abdomen; if Menstruation occurs, it is usually profuse; there is slight fever. This is a common cause of Leucorrhœa. There may be some Peritonitis, indicated by distension of the abdomen. These symptoms may, with proper care and treatment, disappear, and there appears to be complete recovery. Sooner or later, however, possibly years after, upon exposure to cold, or indulging in sexual excesses, there will be a recurrence of the symptoms.

The successful treatment requires complete rest in bed; Hot Fomentations must be kept constantly on the lower part of the abdomen; Salts should be given to secure a watery movement of the bowels daily. After the worst symptoms have passed, hot Saline vaginal douches should be given, as described under the head of Inflammation of the Womb. Often permanent cure can be secured only after resorting to a surgical operation.

## EXTRA UTERINE PREGNANCY.

Normally the ovum should develop into the fœtus, within the cavity of the uterus or womb. As the ova are made or formed in the Ovary, and must pass through the Fallopian Tube before they gain access to the uterus, they sometimes develop in the tube and grow too large to pass into the womb. While the fœtus develops in the tube, it produces a swelling and enlargement of the latter, the walls of which gradually become thinner and thinner, and finally rupture takes place, usually producing disastrous results unless immediately and properly cared for. The symptoms in association with those of Pregnancy—Morning Sickness and cessation of Menstruation—are an enlargement of the lower abdomen, but to one or the other side instead of in the center, as occurs in a normal pregnancy. When the rupture comes—it usually results from lifting or straining—there is sudden acute pain in the side; there is gradual or rapid weakness, caused by internal loss of blood, the amount depending upon the size of the hole in the tube; the lips become extremely white, as does the entire skin; the pulse is rapid and soft, and there are flashes of light and darkness and attacks of dizziness.

When such an attack occurs, the patient should at once be placed in bed, with the foot of the bed raised high on a chair; ice should be kept on the lower abdomen, and the extremities should be kept warm. The services of a surgeon should be secured as soon as possible, for the internal bleeding, as a rule, can be stopped only by means of an operation, and each minute lost represents the loss of so much more precious blood. Some few cases recover without an operation, but this question should be left to the discretion of the surgeon.

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# DISEASES OF THE VAGINA AND EXTERNAL ORGANS.

## THE WHITES—LEUCORRHŒA.

The Whites, medically called *Fluor Albus* or *Leucorrhœa*, is a discharge from the womb or vagina, and is of a whitish fluid, resembling the white of an egg, which is sometimes thin and at others thick, and not infrequently of a yellow color. This disease is occasioned by a chronic sub-acute inflammation of the internal surface of the womb, which is in a sore red state. This extremely common and troublesome female complaint may and does occur in a variety of constitutional conditions and circumstances, but more generally it is associated with general debility, or weakness, and almost certainly so if it has continued profuse for any length of time. This discharge, which is so common among married women, ought not, *as it is too*

*often the case*, to be neglected, for not only may the constitution and general health and strength be seriously injured, but not infrequently the most serious diseases of the womb occur from such neglect.

Of all the diseases peculiar to women, this disease, the Whites, is the most common and troublesome; but few married women escape its attacks. It should be remembered that this disease is often the result of neglect, and that in the milder discharges of the complaint, a little attention and domestic management will often be sufficient to remove this unpleasant ailment. If allowed to go on, as before mentioned, either from mistaken delicacy or carelessness, it may end by undermining the powers of the constitution, and Dropsy, Consumption, and other diseases of debility may originate in consequence. In some women, the Whites is so mild, that it is often neglected or permitted to run on, until it produces great weakness and seriously impairs the health, though it might have been removed by cleanliness and early attention. This neglect is frequently the cause of inflammations of the womb, permanently fixing this troublesome complaint, Leucorrhœa or Whites.

In those of plethoric habit, by which is meant fat or fleshy women, especially in the middle periods of life, the inflammatory symptoms may be of greater severity, requiring more attention to soothe the internal parts by the use of Tepid Water or Cold Salt Water Hip-Baths, etc. The bowels in all such cases require strict attention, and should be regulated by the cooling purgatives, such as Epsom Salts, Seidlitz Powders, etc., or by Cold Water injections. It must, however, be borne in mind, that, in all cases, the strictest cleanliness must be observed, by bathing in Cold Water; indeed, in this disease, the Whites, it is absolutely requisite, both as a prevention and cure. The neglect of cleanliness is one of the most frequent causes of this complaint. This disease generally makes its appearance just before, or after the Monthly Sickness, and women who are subject to a large flow of the Menses, are more apt to be afflicted with the Whites. In many this discharge is constant; in others, at times. When this disease is of long standing, it not only produces great weakness, but it likewise disorders the nervous and digestive systems. Dyspeptic symptoms are almost sure to follow, to a greater or less extent, when the disease is severe. The skin becomes pale; there is a darkness under the eyes, similar to that when a woman has her Monthly Sickness; also a want of muscular energy, and frequently pain in the back and loins, and a general delicacy of health, gradually undermining the constitution.

Leucorrhœa, or Whites, often follows from inflammation of the mucous membrane of the vagina and uterus, but more frequently, perhaps, from debility and weakness. It may, therefore, be produced by any causes that give rise to inflammatory action, or to general prostration. Among these may be enumerated deranged menstruation, cold, want of exercise and fresh air, late hours, exciting reading, company, and conversation, depression of spirits, vicious habits, too early or too late marriage, exciting food

and drink, stimulants, excitements or excesses in venery, exposure to cold, damp weather, thin shoes, injury at childbirth, hard labors, thin clothing, and everything that weakens or debilitates the system. All large cities are the principal places to engender this and other female diseases. In the female, puberty is precociously developed, or she is a woman before her time, for exciting circumstances abound; and the daily habits of women, or, in truth, girls, are calculated to make them weak, and susceptible of cold from the slightest exposure, inducing a variety of other diseases.

In some persons, the Whites appear to be constitutional, and no doubt result in many instances from a Tuberculous taint. Certain temperaments are also apparently more disposed to it than others, particularly those of a nervous habit, light or reddish hair, a thin transparent skin, and who swell and puff up in the limbs from any slight exertion. The intimate connection between the uterine system and the great nervous centers, is also another source of this disease; hence it is often produced by sudden fright, continued anxiety, disappointment, grief, and passion. In short, everything that deranges, weakens, and diseases other parts of the system, will thus disease the womb, whose mysterious and extensive sympathies connect with every other organ in the body. The importance of these remarks may be imagined, when I state that the occurrence of this disease in its aggravated form, and the occasional consequences it then gives rise to, have been the means of raising unfounded suspicions of moral impurity; and of creating discord where it ought not to exist. Never ought such ideas to be entertained for one moment in the mind, still less expressed in words, except when based upon the careful examinations and opinions of more than one medical man. It may sometimes be mistaken for Gonorrhœa, the precise nature of this fluid being in many instances so similar, when of long standing, being very acid, or of a yellow color, as to deceive, in some instances, even the physician. The other disease, however, is a more inflammatory one, attended with more heat, scalding, and soreness in passing the urine or water, and the discharges of a very yellow color. A positive distinction between Gonorrhœa and Leucorrhœa can only be made by a careful microscopical examination of the discharge.

As long as the Whites continues, the ordinary function of Menstruation is more or less deranged; it is likewise symptomatic of disease connected with the womb, and Miscarriage is more liable to occur. Falling of the Womb is also often produced from the Whites, and so generally accompanying it that it may be proper to name it here. Moreover, when a family is desired, the wish is not likely to be accomplished as long as the discharge continues, because when this disease becomes habitual or well established, the womb gradually loses its powers of contraction and strength, the semen or fluid being discharged immediately in combination with this flow of vitiated mucus, the Whites. As before stated, it is associated with general debility, and almost certain to destroy the general health if it continues profuse for any length of time; but it may be quickly removed by rest, cleanli-

ness, diet, bathing in cold water, and mild saline purgatives, such as Epsom Salts and Seidlitz Powders, occasionally taken, and by injections, with a syringe, up the birthplace, with Cold or Tepid Water, and in following the remedies hereafter named.

Remedies.—The first is cleanliness, by bathing freely with cold or tepid water, and injecting it up the birthplace three or four times a day with a female syringe, which can be purchased at any drug-store. Far better than the simple injection of water, is to make use of vaginal douches, described under the subject of Inflammation of the Womb.

In all cases the regulation of the diet will often produce a great improvement of the general health. Where the woman is of a full or plethoric habit, the food should be vegetables, or a light and nutritious diet; for the weak or debilitated, more stimulating, such as Animal Food, Port Wine, Malt Liquors, or such tonics as strengthen the system generally. Due attention, in all cases, should be given to rest, or gentle exercise, regular hours of sleep, and nothing done to exhaust or lessen the strength. Warm Bathing or Cold, as it may be adapted to the constitution. The Shower Bath, used every morning, and the body well rubbed, immediately after, with a coarse towel, and a preparation of Rhubarb and Iron, given internally, in most cases, will check this disease quickly, and restore the general health in very delicate females.

Injection of Sugar of Lead forms one of the most cooling and astringent injections in this disease, in the commencement of the discharge, and should be injected two, three, or four times a day; this remedy will, in mild cases, be attended with much benefit, and in those of plethoric or full habit, this injection, with a dose of Salts occasionally, combined with the Bath, will be found very beneficial. The proportion of the injection is from 5 to 8 grains of Sugar of Lead, medically called *Aceti Plumbi*, to three or four tablespoonfuls of Rain Water; or an injection made with 5 or 6 grains of White Vitriol, medically called *Sulphate of Zinc*, to the same quantity of Rain or Soft Water; or an Alum wash in similar proportions to the last. Any one of these astringent articles, used as an injection, four or five times a day, will, if used regularly, remove the discharge, which few women, particularly if they are married, or mothers, escape completely, for, of all the diseases peculiar to the sex, there is none so common as the Whites.

Thirty or forty drops of Balsam of Copaiva, three times a day, or twenty or thirty drops of the Spirits of Turpentine, taken on Sugar, will be found an excellent medicine in this complaint; or a teaspoonful of Pulverized Cubebs in a tumbler of water twice a day, is likewise a good remedy. Either of those articles can be tried alternately, as they may be beneficial or afford relief.

Five grain doses of the Saccharated Carbonate of Iron may be taken three times a day, for a length of time; this will both strengthen the tone of the system, and allay the irritability of the uterus or womb.

Six grains of Dover's Powders, taken twice a day, night and morning, is one of the most valuable remedies to restore the proper action of the uterine vessels.

Griffith's Mixture, which can be obtained at any drug-store, is an excellent medicine for the Whites. The Sweet Spirits of Niter and Hoffman's Anodyne Liquor are often of great benefit, in doses of a teaspoonful.

When the discharge is so acrid as to create pain, and a scalding heat in making water, the following is one of the most valuable remedies and never fails to afford immediate relief: Take of Sweet Spirits of Niter, 1 ounce; Balsam Copaiva, ½ ounce; Sweet Almond Oil, 1 ounce; Spirits of Turpentine, ½ ounce; Pulverized Camphor, 10 grains, put into a four-ounce vial, and shake up well for a few minutes, and it is ready for use. Dose: one teaspoonful in a wine-glassful of Slippery Elm Tea, made by pouring boiling water on the Slippery Elm Bark, and let it soak well until it becomes a mucilage, or thick, like syrup. In Inflammation of the Kidneys, medically called *Nephritis*, this will be found a most useful remedy.

Where there is much weakness, the patient must keep still; in fact, she must have perfect rest; defend the feet well from dampness, and use a generous diet and tonics to strengthen the system, such as the Muriated Tincture of Iron. Dose: from twenty to twenty-five drops in half a tumbler of cold water three or four times a day. Take through a glass tube, as the iron will otherwise injure the teeth. Or, take a little good Port Wine and Peruvian Bark. The bowels should be kept gently open by the use of Rochelle Powders, or Extract of Butternut or Aloes; or Seidlitz Powders, or small doses of Epsom Salts. Where there is much general weakness, the strength must be restored by the use of Quinine, Wine, the Mineral Acids, and the preparations of Iron, or such springs of water as contain Iron, which should be used whenever it is practicable to visit them. In Paris I obtained the following successful remedy: Tincture of Aloes, 1 ounce; Muriated Tincture of Iron, 2 drachms; mix. The dose is from thirty to forty drops three times a day in a little water. Inject up the birthplace, with a fountain syringe, the following wash, twice a day: Sugar of Lead, 1 drachm; White Vitriol, 1 drachm; put both these into 1 pint of Rain Water, shake up well, and use as directed.

Another valuable medicine, which in many cases will relieve, is the pill, made at any drug-store, as follows: Alcoholic Extract of Cubebs, 1 part; Solidified Copaiva, 2 parts; mix well together, and make in three or four grain pills. One or two of these are to be taken two or three times a day until relieved, or as they may agree with the stomach; but, as some persons dislike to take pills, the following remedies may be used instead: Commence by taking a gentle purgative, then use Cold or Tepid Water injections, after which the following medicines should be taken: Balsam Copaiva, 1 part; Sweet Spirits of Niter, 2 parts; Spirits of Turpentine, 1 part; Tincture of Kino, 1 part: these four articles above mentioned are to

be mixed together and shaken up well. Dose : thirty drops in a wine-glassful of Milk or Slippery Elm Tea, three times a day, on an empty stomach. While using this remedy, or shortly after, according to the severity of the discharge, or the general health being weak, you will find the following tonic preparation to give strength to the system, and in a short time relieve the disease : Elixir of Iron, Quinine, and Strychnine and Elixir of Ammonium Valerianate, equal parts, a tablespoonful three times a day before meals.

Usually there is an inflammation of the womb, or of the Fallopian tube, or of the mucous membrane of the vagina which causes the Leucorrhœal discharge ; laceration of the neck of the womb, or of the wall of the vagina, or ulcerations in these localities may all cause Leucorrhœa ; and as long as these conditions exist, all the drugs in the world and all the douches and injections, of whatever nature, will not have the slightest effect upon the discharge. I cannot urge too strongly the necessity for a thorough examination, to determine what is wrong; it is a false modesty, indeed, which prevents a woman from refusing such an examination and he is a false doctor, indeed, who will treat Leucorrhœa without first making a thorough examination. The cause having once been discovered, if removable, the disease can readily be cured. If there is inflammation of the uterus, it should be scraped out, this is not a very serious operation and is usually necessary. If there are lacerations or tears, they should be repaired and sewed up. If there are ulcerating sores, they require local applications and treatment. When the cause is once discovered and removed, the checking of a Leucorrhœal discharge is readily accomplished. Simple displacement of the uterus is sufficient cause to produce Leucorrhœa, so that a misplaced uterus should be placed in proper position and held there by means of a properly fitting pessary. It is readily seen that many cases of Leucorrhœa can be cured only by means of a surgical operation, which in the hands of a skillful surgeon is accompanied with but little danger. Douches and a few medicines are necessary as secondary agents, but neither will they alone, nor will operations alone cure Leucorrhœa, there must be a combination of these. Of course there may be mild cases, of a catarrhal nature, which douches alone will cure.

In closing this important subject, let me advise always to keep the feet dry and warm, and the dress sufficient to prevent chills and colds. Gentle employment of the mind and muscular powers will greatly assist in the cure of this disease. Women in the country, who lead a more active life, who breathe the fresh air and live on plain food, are less liable to this complaint than those in cities. Women of a delicate make and inactive life, living amidst all the fashionable luxuries, which are great drains upon the body and mind, see the sure consequences in alterations of the functions of the body, which produce a weakness of the whole system, and shorten the natural duration of human life. The mutual relationship and constant interchange of action subsisting between our mental and corporeal natures,

can scarcely have escaped even the most careless observation. Let the functions of either be disturbed, and more or less disorder will straightway be reflected to those of the other. The hardiest frame must suffer under the agitations and afflictions of the mind; and the firmest mind cannot long remain unharmed amid the infirmities and sufferings of the body. Few, we imagine, have formed any adequate estimate of the bodily ills which originate in the mind. Even the physician. concentrating his attention upon the physical, is very liable to neglect the mental causes of disease, and thus are patients sometimes subjected to the harshest medicines for relief, when the true origin of the disease originates and continues from some inward and rooted sorrow, which a moral balm alone can reach.

Many of the physical evils — the want of vigor, the inaction of the system, the languor and hysterical affections — which are so prevalent among the delicate young women of the present day, may be traced to a want of well-trained mental power, well-exercised self-control, and to an absence of fixed habits of employment. Real cultivation of the intellect—earnest exercise of the moral powers — the enlargement of the mind by the acquirement of knowledge, and the strengthening of its capabilities for effort, for firmness, for endurance of inevitable evils, and for energy in combating such as they may overcome, are the ends which education has to attain. The power of the mind over the body is immense. Let that power be called forth; let it be trained and exercised, and vigor both of mind and body will be the result. There is a homely, unpolished saying, that "it is better to wear out than to rust out;" but it tells a plain truth — rust consumes faster than use. Better — a million times better — to work hard, even to the shortening of existence, than to sleep and eat away this precious gift of life, giving no other evidence of its possession. By work or industry, of whatever kind it may be, we give a practical acknowledgment of the value of life, of its high intentions, of its manifold duties. Earnest, active industry is a living hymn of praise, a never-failing source of happiness; it is obedience, for it is God's great law for moral existence.

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## NYMPHOMANIA.

This is simply an inordinate desire in the female for sexual intercourse, to such an extent that it becomes a disease. It is usually attended with more or less itching and burning pain of the external genital organs, and in the vagina, pain in the bladder, with strangury and retention of the urine, and sometimes fainting and hysterical fits. It may be owing to various causes, as too frequent indulgence in sexual intercourse; Gonorrhœa, and consequent irritation of the genital organs; over-heated voluptuous imagination; idle and luxurious mode of living; Worms; Masturbation, or Self-pollution, and the like.

TREATMENT.—The most approved remedies are light, vegetable, and cooling diet, and, if need be, fasting; cooling lotions, as solutions of Sugar of Lead, Camphor, and Zinc, and applications of Cold Water to the Genitals, and the free use of Camphor and Bicarbonate of Soda internally. Inject Cold Water frequently into the vagina. Bathe the external parts with a solution made of Sugar of Lead, 1 drachm; powdered Camphor, 1 drachm; Water, 1 pint. Take a pill, composed as follows: Gum Camphor, powdered, 2 drachms; Ipecac, 30 grains; make into 60 pills, with Extract Hyosciamus, and take one pill night and morning. Also take a teaspoonful of Bicarbonate of Soda, in a little water, once or twice a day. Sleep on a hard bed, with light cover; avoid lascivious thoughts and books; engage in some useful and laborious employment, that will give free exercise to all parts of the body, and call the mind off to other objects. Abstain from sexual congress as much as possible. A trip to a cold climate is recommended. For temporary use, 15 grains of Bromide of Potassium should be taken three or four times a day.

## PRURITUS

IS ITCHING of the external organs of generation. This itching, which varies in intensity in different individuals, and in accordance with the cause, is sometimes extremely troublesome.

It may be caused by irritating urine, as in Diabetes or Cystitis; it may be due to Eczema, to Parasites, to irritation or disease of the rectum.

THE TREATMENT consists in the removal of the cause, so far as is possible. If due to irritating urine, the parts should be protected, with one of the following preparations: One part Carbolic Acid in ten of Benzoated Oxide of Zinc Ointment; or one part of Chloral or Menthol in ten or fifteen of Vaseline. Blue Ointment should be used in case of Parasites. Vaginal douches of two per cent Carbolic Acid should be used. Leucorrhœa may be a cause of the itching, and should be properly treated as directed under that subject.

# DISEASES OF THE BREAST.

## SORE AND INFLAMED BREASTS.

DURING the last two months of Pregnancy, the breasts should be washed twice a day and then touched with a piece of clean absorbent cotton, saturated with a mixture (equal parts) of Glycerol of Tannin and Water.

Sore Nipples are often caused by wearing a tight jacket, or by too tight a fitting dress. The mother should recollect that when nursing her infant, her breasts are much larger than at other times, and also that the nipples,

from constant nursing, are much more tender and easily irritated. Another and most common cause, is neglect properly to dry the nipples after the child has nursed. The nipples should be well dried after each nursing, and a little Starch Powder, or powdered Magnesia, sprinkled on. Should they, however, become sore, use Olive Oil or an ointment composed of one per cent Ichthyocol, or the ointment of Zinc Oxide may be used alone, or with ten grains of Iodoform to the ounce. If the breast becomes very sore and inflamed, suckling should be stopped, the Breast-Pump being used to withdraw the milk, and the breast should be supported by firmly bandaging. Applications of Lead and Opium (a drachm of Laudanum to an ounce of Dilute Lead Water) should be constantly applied. It may become necessary to strap the breasts with surgeons' Adhesive Plaster. Sometimes the nipple is so sensitive that the contact of the gown or bed-clothes is painful. In such cases a breast-shield should be worn. If the above precautions are not taken, abscesses may form in the breasts. If an abscess once forms, the sooner it is opened the better. It should then be treated as an abscess in any other part of the body, *i. e.*, with moist Bichloride of Mercury dressings and bandages. I cannot impress too strongly the importance of bandages to support and hold the breasts firmly and with gentle pressure. Of course, the child should not suckle the inflamed or the other breast, and recourse must be had to modified cow's milk and the bottle. (See section on Children, for artificial feeding.)

To dry up the milk, stop nursing and apply a Belladonna Plaster, repeating as often as necessary, or until there is dryness in the throat, and disturbance of vision. This is usually sufficient to stop the secretion of milk.

## CONGESTION OF THE BREAST—CAKED BREAST.

Congestion, *i. e.*, excessive amount of blood, occurs in almost every woman on about the third day after delivery of the child. If this is not at once and properly cared for, imflammation and abscess may result, to be followed by chronic inflammation, which may, in later life, act as an exciting cause of Cancer. Fortunately, all this trouble can be readily prevented. On the evening of the second day following the birth of the child, a half an ounce to an ounce of Epsom Salts with a drachm of Tincture of Cardamom and a drop or two of Oil of Anise and sufficient Hot Water should be administered. The milk must be thoroughly withdrawn at regular intervals, either by the baby's mouth or by means of the Breast-Pump. Massage and rubbing will aid in evacuating the breast. Hot Fomentations or Hot Lead and Opium ( a drachm of Tincture of Opium to an ounce of dilute Lead Water) should be used as constantly as possible. A mammary binder should be used by all means; this is a broad bandage so applied as to raise and support the breasts, and at the same time exerting a firm but gentle pressure. Flannel is the best material for the purpose.

# FOR THE PERUSAL OF MOTHERS.

Of all the children born, about one-half die before they attain five years of age. It is little short of a mockery of Creative Wisdom to suppose that this is unavoidable. The great mortality among children, like all human evils, may, in a great measure, be averted by proper treatment. Every mother who sends for a doctor for her sick infant, is practically of the same opinion. The proximate causes of death in infancy are very numerous, and such is the extreme delicacy of the little tenement of life, that even the smallest injury, something quite unforeseen, will often prove fatal in a very few minutes. It is very certain, however, that there is a greater likelihood of preserving the lives of children, when proper care is taken for that purpose, than where there is no care. It behooves every mother of a family to educate herself on those points which chiefly affect the health of her offspring.

Mothers do not, in general, act upon regular principles in the early nurture of their infants. The lower class are excessively ignorant, often superstitious, and generally are far from being cleanly, or attentive to a variety of circumstances, affecting the comfort of their children. The higher class of mothers are, perhaps, not so ignorant, and they are, at least, able to purchase advice; but they are, in the main, culpably careless on almost every point with regard to the nurturing and bringing up of their family. Instead of attending to them themselves, the parents usually hand them over to individuals who are totally unacquainted or unprepared, by education or instruction, for any such duty. It is indeed a very curious fact, that the early physical and mental training of the higher order of society, including those who affect to consider themselves as ranking among the higher class, is almost entirely in the hands of the most ignorant females in the country. The mothers who generally manage their children the most advantageously, and with greatest credit, are the wives of tradesmen, farmers, and men of business, who possess a sufficient degree of common sense to guide them in their maternal duties, and are not above attending to their children in their own proper persons. Among the respectable and intelligent portion of the community, the parlor is often the nursery; and it is from the mouths of the parents that the earliest principles of morality and religion, as well as the rules of external decorum, are first implanted in the susceptible infant's mind.

If there be one law of Nature more obligatory than another, it is that which is laid upon mothers to nurture and rear with scrupulous care the tender offspring which have been graciously committed to their charge. What must we say of that woman who recklessly resigns this sacred office to others, and leaves her children either to fall victims to an improper mode of treatment, or to grow up with faculties obscured, and perhaps their physical frame debilitated or distorted. In cases in which nurseries apart from the sitting room of the family are indispensable, they should be placed in an airy part of the house, and be subject to careful regulations. For

example, the sleeping apartments of children should be separated from the day-room, and should have no fire in it, with the exception of cold, wet days, change of weather, or sickness. At night there should be no fire in their sleeping rooms, except in cold or damp weather. To bring up children night and day in close, confined rooms, with fires, is most injurious to their health, for the air becomes heated, and keeps the children or inmates of the room in a constant stew, so that when they are exposed to the ordinary atmosphere, they are liable to colds.

From the nature of the infant, and the adaptation of the milk to its growth and development, it is obvious that it ought to have that full and regular supply of this fluid, which the full nourishment of the infant constitution requires. Hence the necessity or importance, in the event of the absolute incapacity of the mother, from debility or sickness, to suckle her child, of procuring a healthy nurse to supply her place. The natural relation, however, which subsists between the mother and her own child, cannot be too cautiously interfered with; for sometimes a change to a strange nurse proves more injurious to a tender infant, than the continuation of its support from even a much weakened mother. There is a certain adaptation of the mother to the constitution of her own child, that renders her, generally speaking, its very best nurse, and unless there be sufficiently strong reasons for dissolving their connection, this natural adaptation should be preserved unchanged. When it is reckoned absolutely necessary to make a change (from the mother to a strange nurse), careful attention should be paid to the age of the child, with the period of her nursing, the age of her milk, and its qualities, her constitution, general health, and cleanliness; these points must not be overlooked. The milk of the mother, or nurse, must at all times be adapted to the age of the infant, its wants and powers of digestion; and if this adaptation is not observed in changing the nurse, the result is derangement of the whole functions of nutrition, and for these reasons. When the infant is newly born, digestion is weak in its first performance, and only attains strength with the increasing physical development of the system. On this account, the milk of the mother at its birth is weak and watery, and easily digested. But as the infant becomes older, say four or five months, its body has grown considerably; its waist is greater, and its power of digestion to supply it much increased. On this account, the milk of the mother becomes much stronger with the age of the infant, so as to yield a greater amount of nourishment in less bulk than formerly. Now if this be not kept in view, painful and serious consequences may ensue: Should a new born infant, for example, be put out and suckled by a nurse that has given milk six months previously, the milk will prove too nutritive; it does not digest easily, and causes derangement of the stomach and bowels; or by its over-nourishing or stimulating nature, induces a disease of fever or excitement, to which the infant is constantly more or less constitutionally subject. On the other hand, should a child of six months be put to nurse on a mother's first month's milk, the opposite consequences will ensue; the child will not be sufficiently nourished, it

becomes quite weak, and hence equally prone to disease. It is necessary, therefore, to preserve this important relation between the mother and the child, so far as lies in our power, as it is in accordance with the clearest dictates of nature and common sense. A nurse requires nothing more than ordinary, nourishing, and plain food, always choosing that which agrees with her stomach and bowels best; both a vegetable and animal diet is natural and healthy, having which, with proper exercise and cleanliness, if enjoying sound health, the nurse is fully competent for her purpose; but if she is weakly, the most suitable diet to the producing a secretion of healthy milk becomes necessary. If a satisfactory wet-nurse cannot be obtained then the next best thing is to feed the child upon modified cow's milk. If a modified-milk laboratory is accessible, then, even better than a wet-nurse is milk modified according to a physician's prescription. At these laboratories cow's milk is modified so that it almost exactly resembles the natural mother's milk. The great objection to feeding a child by this means, is the expense. (See under the heading of Children's Diseases, Methods for Home Modification of Cow's Milk.)

When the infant has got the first front teeth and has become accustomed to the use of prepared food, weaning should then begin. By degrees it must gradually suck less, while the supply of the prepared food must be increased until the infant has no further use for its mother's milk. Sudden weaning is injurious to health. Weaning should not take place earlier than the eighth or ninth month, nor later than the fourteenth or fifteenth. It depends, however, in the first instance, on the situation of the mother; the infant, generally speaking, ought to have the four front teeth. It must be regulated very much by circumstances. Should the infant be naturally of a delicate constitution, and have suffered much from teething, or from any of the diseases of infancy, and the mother's milk continues plentiful and sufficiently nourishing, weaning may be deferred beyond the usual time or period. Too great care cannot be exercised in changing the food from mother's milk. Cow's milk should first be used. The child should not be given bread and butter, meat, etc., at once. Up to the fifth or sixth year great care should be taken with a child's diet; for at this time (weaning) the foundations for constipation and other diseases are laid.

I shall now call your attention to clothing infants, which is of the utmost importance, and should be strictly attended to. The first covering of the infant's body should be of wool in the winter, and linen in the summer, which should be regularly changed and aired night and morning, as its dryness and cleanliness, when worn, continue to preserve the skin in a healthy condition, and keep the constitution sound. Above the inner covering a dress of flannel should be worn, thicker or thinner, according to the severity of the climate or season. Flannel used in this manner is proper for infants, being loose in its texture, and also a non-conductor of heat; it preserves, with little diminution, the animal warmth, and by its looseness affords, also, a greater surface for the gradual evaporation of the perspiration, which it readily takes up through the inner dress, and thus conveys away, without

producing too sudden a depression of temperature on the skin. On this account its use is resorted to with the greatest advantage in advanced years.

There is considerable risk in children suffering from exposure to cold during the night, by tossing off, in their restlessness, the bed-clothes which cover them, as well as from their greater susceptibility to cold during sleep, when the power of the constitution to resist it is considerably diminished. To obviate, therefore, as far as possible, the danger arising from this cause, a long flannel night-gown should be worn over the cotton shirt, sufficient to preserve the child's natural warmth.

The head should always be kept perfectly cool; in winter, of course, it must be covered with a comfortable cap, when out of doors, not too heavy or close in its texture. Comfort, not warmth, is all that is necessary. Anything that is too heavy or too warm, accumulates too much heat about the head of the child, and thus favors too great a determination of blood to the brain, an event that often takes place, deranging that delicate organ, as well as increasing the dangers of teething. Within doors, if covered at all, it should be only with a cap of the thinnest material. It is better, in my opinion, after the infant is two months old, in warm weather, to leave the child's head altogether uncovered. By leaving the head without a cap, the hair grows much faster and gives it the necessary covering which Nature usually provides for it. During sleep the same rules ought to be observed, that is, to allow the child, when somewhat advanced, to sleep without any head covering; for I have every reason to believe that many diseases of the brain are produced from this cause. At all events, if a cap is deemed necessary, a very thin one should be used.

Widely different is the physical state of an infant from that of a grown person. The newly formed bones of the former are soft and flexible, and may easily be made to assume any form, especially when the body is in a diseased state. This accounts for the common origin of such irregularities of form as are not of natural origin, but occur at an early period of life. In proportion, therefore, to the delicacy of the infant, will be the care required in its raising.

Much has been effected in this way by constant and persevering attention, and many weakly and unpromising children have, by judicious treatment and care, been raised to maturity, and have passed through life in the enjoyment of a considerable share of health and vigor. A finely formed body is favorable to the enjoyment of sound health. Every one is struck with the commanding figure, the graceful appearance of a person so formed; but few inquire into the reason why all are not so gifted. If parents would have their offspring free from personal defects — if they would have their limbs moulded into the form indicative of grace, activity, and strength — they must commence their attention to their children from the time of birth. Though they may not always succeed in securing for them the highest state of physical perfection, yet they will generally be able to effect such an improvement in their constitutions, as will form the basis of future health.

Children should not be too early set upon their feet, but should rather be placed upon their backs on the floor, that they may exercise their limbs with freedom. The former practice is a frequent cause of malformation in the lower extremities. Especial care should be taken that the spinal column, so tender in young children, does not take a wrong direction. The manner in which a child, and especially a delicate one, is suffered to sit on the nurse's arms and lap, should be very carefully attended to. Until it has acquired sufficient strength to keep itself erect, its back ought to receive proper support. By being suffered to sink in a crouching posture, with the head and shoulders inclining forward and the back projecting, a bad habit is soon contracted, which often leads to distortion of the spine. Neither is it in the arms alone that this attention is required, the effect is not less injurious if the child be suffered to sit upon a chair, as, when fatigued, it will naturally adopt that position which, at the moment, affords most ease. Here it may not be improper to notice the very common practice of raising a young child by its arms, in such a manner that the sides of the chest being pressed by the hands, or rather the knuckles of the nurse, its cavity is diminished, the sternum, or breast-bone, pushed out, and that deformity produced in delicate children commonly called "pigeon-breasted." Do not bind up a baby's feet and legs, leave them loose so that they are free to kick as much as they desire; this will help to make them strong.

You should never strike children on the head; many fatal cases have been produced by this unnatural method of correcting children. I recollect a sad case of this kind, which caused the death of an interesting child, two or three years of age, by a hasty blow from the hand of its father. The child was standing upon a chair, and in a moment of petulance, the parent struck it on the head, precipitating it head foremost upon the floor. It soon fell to vomiting, and expired the next day. I have often seen mothers strike their children on the head. This mode of chastisement is not only dangerous, but often produces diseases of the brain, which may terminate fatally, or otherwise produce many diseases throughout life.

Plain diet is what children ought, on every account, to be accustomed to from the very first. It is more suitable for their present health and comfort, than those little nice things with which fond parents are so apt to vitiate their appetites; and it will save them a great deal of mortification in after life. If you make it a point to give them the best of every thing—to pamper them with rich cakes, and sweet-meats, and sugar-plums; if you allow them to say with a scowl, "I don't like this," and "I can't eat that," and then go away and give them preserves or candy for their dainty palates, depend upon it, you are doing them a great injury, not only on the score of

denying them a full muscle and a rosy cheek, but of forming one of the most inconvenient habits that they can carry along with them into after life. Better, far, to put them upon water gruel or brown bread, till their appetite comes, and they can be satisfied with such food as others eat at the same table. If you accustom your children "to eat what is set before them, asking no questions," they will always find something, among whatever class of people they may afterward be thrown, upon which they can make a comfortable meal; whereas, if you allow them to mince and find fault at your own table, when they come to leave you, they will not, half the time, find any thing they can eat, and thus you will prepare them to go chafing along through life, the veriest slaves, almost, in the world.

Whether an infant be suckled by its mother or by a hired nurse, it is evident, that no other food can properly supply the place of the breast-milk in early infancy. It is of importance, therefore, to inquire what diet, supposing a woman to be in health, is best fitted for promoting the due secretion of good milk; what exercise a mother who is suckling, ought to take; and at what times the infant ought to be suckled. In reply to the first inquiry, I advise every woman to adhere, as much as possible, to plain, light, and nutritious diet; and to abstain from highly seasoned food, salted meats and poultry. A very mistaken notion prevails among the fair sex, that vegetables must be avoided by nurses; on the contrary, every nurse should eat a moderate share of well-boiled vegetables at dinner; and ripe fruit, if it agree with her at other times, can not prove hurtful while she is suckling, provided it is eaten in the forenoon. From the fluid nature of the milk, nurses require a larger supply of beverage than other women, but this should neither be strong or soporific, but diluting, bland, and cooling. In females of delicate habits, and during the progress of suckling, when the nurse is conscious that her strength is failing, ale or porter, or a moderate quantity of wine, may be requisite. But if these are indulged in, they should be accompanied by a large share of mild and diluting liquids, as weak tea, milk and water, barley gruel, or rennet whey. Supper is a meal which every nurse, who performs her duty to the infant, requires; for she who resigns her charge during the night to a maid, to have its cravings supplied by the feeding-bottle or spoon, scarcely deserves the name of a nurse.

With respect to exercise, every nurse should walk out daily, or take exercise in a carriage, if too delicate to walk without suffering from fatigue. But no exercise should be taken which can hurry the circulation of the blood; for as the milk is formed from the vital fluid, it is evident that its secretion or preparation in the glands of the breast can not be properly effected, if it be carried in too rapid a current through them. Hence, nurses ought to refrain in all cases from

dancing, and even from riding on horseback, unless the movements of the horse be extremely easy.

For the same reason, every agitation of spirits ought to be avoided; for the softness and serenity of the female character are necessary especially in the nurse. It is vain to expect a healthful rill to flow from the fountain of infantine nutriment, when the poison of discord is infused in the bosom, and the heart is swelled with acrimony and vehemence. But in securing that complacency of disposition in the nurse, which is so necessary for the well being of the infant, both parents must concur; for who can expect equanimity in the wife, who is harassed by contradiction and debate, and who seldom feels the solace of those endearments which esteem and love can only secure in connubial intercourse? Nothing interferes more with the duties of the nurse, than irregular hours; hence I affirm that no characters are more inconsistent than those of the nursing mother and the pleasure-hunter. With respect to the times of feeding, it is true that the child may be inured to any habits which the nurse may adopt; but the child who is accustomed to be suckled at fixed periods, is always the most healthy. The stomach is less likely to be overcharged from excessive hunger, or to be nauseated by the crowding of one meal upon another, to suit the engagements of the nurse. Young children require to be more frequently nourished than those who are more advanced in age. At first the interval between each period of suckling, should not exceed two or three hours; but, when the child is four months old, it may extend to four hours, and to six during the night if the child sleep well. To females who have the true feelings of a mother, these intervals are sufficient to permit exercise, and the pleasures of society as far as they ought to be indulged in by the rational nursing mother.

From what has been detailed, the following conclusions may be deduced respecting the food of early infancy:

1st. That the breast milk, being prepared by Nature for the support of the infant, is preferable to every other kind of food.

2d. That when the mother is healthy, and the supply of breast milk is sufficient, the infant should be supported on it alone.

3d. That in order to secure a healthful and abundant supply of the breast milk, the diet of the mother or the nurse should be light, nutritive and unstimulating; that her mind should be kept in a tranquil state; that every thing should be avoided which can hurry the circulation and heat the blood.

A great error exists in giving children medicine continually, which is too frequently productive of serious consequences. Purgative medicines ought at all times to be given with caution; Castor Oil is preferable to any other, being the mildest and least irritating.

# THE WIFE.

In comparison with the loss of a wife, all other earthly bereavements are trifling. The wife! she who fills so large a space in the domestic heaven—she who is so busied, so unwearied in laboring for the precious ones around her—bitter is the tear that falls on her cold clay. You stand beside her coffin and think of the past. It seems an amber-colored pathway, where the sun shone upon beautiful flowers, or the stars hung glittering over head. Fain would the soul linger there. No thorns are remembered above that sweet form, save those your hand may have unintentionally planted. Her noble, tender heart lies open to your inmost sight. You think of her now as all gentleness, all beauty and purity. But she is gone! The dear head that laid upon your bosom, rests in the still darkness, upon a pillow of clay. The hands that have ministered so untiringly, are folded, white and cold, awaiting the gloomy portals of the grave. The heart whose very beat measured an eternity of love, soon will lie beneath your feet. The flowers she bent over with smiles, will then bend above her with tears, shaking the dew from their petals, that the verdure around her grave may be kept green and beautiful.

Many a husband may read this in the silence of a broken home. There is no white arm over your shoulder; no dear face to look up into the eye of love; no trembling lips to murmur the kindest feelings of the heart. Ah! how sad! how lonely you feel! for the idol of your heart is gone. The little one whose nest death has rifled, gazes in wonder at your solemn face, puts up its tiny hands to stay the tears, then nestles back to its father's breast, half conscious that the wing that sheltered it most fondly, is broken forever.

Remember, then, that nothing in life is so pure and devoted as woman's love. Wound not, then, the heart that loves you—that fountain of unsealed and gushing tenderness. It matters not whether it be for a husband or child, or sister or brother, it is the same pure unquenchable flame, the same immaculate glow of feeling, whose undeniable touch-stone is trial. Give her but one token of love, one kind word, or one gentle look—even if it be amid poverty, desolation and death—the feelings of that faithful heart will gush forth as a torrent in despite of earthly bonds or mercenary ties. More priceless than the gems of Golconda is the female heart; and more devoted than the idolatry of Mecca is woman's love. It is a dear delight for the soul to have confidence in the faithfulness of a wife. It makes a pillow of softness for the cheek which is burning with fears and the



THE WIFE.

touch of pain. It pours a balm on every sorrow. It is a hope undeferred—a flowery seclusion into which the mind, when weary with sadness, may retreat for a caress of constant love.

Bereavements long withheld, descend sometimes as chastening griefs upon our nature, to remind us of our duty to our Heavenly Father, and direct our thoughts to that happy and blessed home "where all tears and sorrows shall be wiped away," "and we shall meet those dear ones, to go out no more forever." There is healing in the bitter cup. God takes away, or removes far from us those we love, to increase our faith and impress on our minds the uncertainty of life, and to teach us to look forward to a reunion in another world, where there will be no more separation, and no mutability, except that which arises from perpetual progressiveness. Faith is that precious alchemy of the soul which transmutes grief into joy; that pure and heavenly change which clears away the film from our morta sight, and makes affliction appear what it really is—a dispensation of mercy. Then cherish the remembrance of that faithful friend, that dear departed wife, whose holy presence, as a ministering spirit, is probably now guarding your innocent children. In all new and pleasant connections, give her spirit a place in your heart. Never forget what she has been to you. Be tender of her memory; so you may meet her, with a soul unstained, in that bright and beautiful world.

Wife and Mother! What sacred memories cluster around those words! That being, whose affections will linger around us to the very last! What sweet consolation in the hope when this freed spirit is released from its earthly tabernacle, we shall again behold those we have loved on earth, in the home of the blest, whose deep sound of joy no mortal ear hath heard; where our friendships will be renewed; where God hath said, "Eye hath not seen, nor ear heard, nor has it ever entered into the mind of man, to conceive the joys He hath prepared for those who love and serve Him."

Consider who deprived you of that dear wife and companion. Was it not God? Did not He that gave her to you, take her from you? May He not do what He pleases with His own? Is there any defect of wisdom or goodness, of justice or mercy, in God's disposal of your wife? Or, will you ever have rest but in submitting to the Divine good pleasure? You must not have all your mercies conveyed to you merely by one instrument. Therefore, when one dear friend has done her part for your welfare and happiness, God will send you other mercies, by another hand; and it is fit He should choose the messenger who bestows the gift.

But there are some who doubt whether heaven itself will renew those friendships of earth. To remove such a distressing apprehen-

sion, let the following reasons, which are supported by God's Word, be sufficient: you can not think that the knowledge of glorified saints shall be more imperfect than their knowledge was while they were upon the earth. We shall know much more, not less than before. Heaven exceeds earth in knowledge as much as it does in joy. The angels of heaven have now a distinct knowledge of the least believers on earth, and rejoice in their conversion, and are styled by Christ "their angels." Therefore, when we shall be equal to the angels, we shall certainly know our nearest friends, who will have their share with us in that glory. And though God be all in all in heaven, yet we shall there not only know, but love and rejoice in our fellow-creatures; for Christ, in His glorified human nature, will be known and loved by all His members, without any distinction of the glory of His Divine nature. The several members of the body of Christ will in heaven be so nearly related to each other, that they must know and love each other, and not be unconcerned in each other's felicity. The future triumphant state of the Church is often described in Scripture as a kingdom, the city of God, the New Jerusalem; each of which implies a society. As one part of the saints' happiness, they are to come from the east and west, and sit down with Abraham, and Isaac, and Jacob, in the kingdom of heaven; therefore, they shall not only know those great patriarchs, but shall take peculiar delight in their presence and converse. Besides, love to saints, as well as to God, is a grace that never faileth. Yes, religion's bow of promise points his aspiring though humble spirit to the future, the glorious hope of meeting again those we have loved on earth.

When we cast our eye back through the dim vista of the past, and recall to mind the friends of our soul, we are led to inquire, "Where are they?" With all the numerous throng with whom we sported away the laughing and happy hours of infancy, whom we could firmly grasp by the hand and enjoy our innocent pastimes, how few now meet our wandering eye! Some, in their journeyings through the vale of human life, have been called to other climes—to distant, strange lands; some have gone to their final resting-place, the tomb; others been turned from us by the repulsive power of their cold feelings of estrangement.

But there are a few choice spirits who still linger around us, irradiating, like stars, the sky of our being, diffusing a halo of delight through it, rendering it brilliant with the light of hope and joyous expectation. These we link with a few departed companions of our early years, who are gone from the trials and temptations of this sinful world to that happy home, where, we fondly trust, we shall meet them again in that pure and heavenly rest, where our souls may commingle together, united in the bonds of holy affection, through the long and

ceaseless ages of eternity! It cannot be that those dear beings, whose hearts once beat mutually with ours, whom the Angel of Death has hid from our gaze, and whose names, with the cold and selfish world, are destined to float for awhile on the tide of remembrance, then pass away into the sea of forgetfulness, are fated never more to meet our view. No: there is a voice that comes from our blessed Jesus, "As my Father hath loved me, so have I loved you." There is a closer fellowship, for it is that of spirit as well as of mind; for God, that is all love, would never have created hopes that are to be bounded by the grave. Ours is an immortal friendship, for it rests on an imperishable basis. It is not union so long as we travel together, but union, too, in our everlasting rest.

A few short years of evil past,
We reach the happy shore,
Where death-divided friends, at last,
Shall meet, to part no more.

We feel that death puts an end to our friendship; but Christ's friendship only moves a step closer when mortality intervenes. It is not for a moment suspended. The spirit rises to Himself, to the enjoyment of His presence, and to forms of intercourse and endearment which can not now be imagined. So it was in the history of Enoch: To-day, he "walked with God" on earth—to-morrow, he walked with Him in heaven. "*We shall meet again*," is an endearing thought, which cheers us on our pilgrimage through the dark wilderness of life—secretly admonishing us to beware of temptations, and to shun the soul-destroying haunts of vice. Remember the words of our blessed Redeemer: "He that believeth shall not perish, but have everlasting life." Cordial belief in Christ Jesus, God's own gift, brings into the heart the first pulsations of the new existence, and we shall at last have a meeting more blissful and transporting than all the joys of earth, *never to end*, where the union is at length consummated, amidst the pealing hallelujahs of grateful triumph and everlasting love—a union never to be interrupted by one passing doubt, but ever to become more joyous and affectionate in the fruits of unbroken and mutual kindness, of glory in the presence of God.

# SECTION IX.

## DISEASES OF CHILDREN.

### A MOTHER TO HER FIRST-BORN.

'Tis sweet to watch thee in thy sleep,
When thou, my love, art dreaming;
'Tis sweet o'er thee a watch to keep,
To mark the smile that seems to creep
O'er thee, like day-light gleaming.

'Tis sweet to mark thy tranquil breast
Heave like a small wave flowing;
To see thee take thy gentle rest,
With nothing, save fatigue, oppress'd,
And health on thy cheek glowing.

To mark thee now, or when awake
Sad thoughts, alas! steal o'er me;
For thou in time a part must take,
That may thy fortunes mar or make,
In the wide world before thee.

But I, my child, have hopes of thee,
And may they ne'er be blighted;
That I, years hence, may live to see
Thy name as dear to all as me
Thy virtue well requited.

I'll watch thy dawn of joys, and mold
Thy little mind to duty;
I'll teach thee words, as I behold
Thy faculties, like flowers, unfold
In intellectual beauty.

And then, perhaps, when I am dead,
And friends around me weeping,
Thou'lt see me to my grave, and shed
A tear upon my narrow bed,
Where I shall then be sleeping.

# GENERAL REMARKS.

We know no lovelier earthly scene than that presented by a mother kneeling at the couch of a dear infant (whose little arms twine round her neck in loving tenderness), and kissing its lips; from these healthy breathings come forth the pure spirit of innocence and love. The mother looks upon the child's exceeding beauty with momentary pride; then, as she continues to gaze on its lovely face, her dark eye deepens with intense and unutterable fondness at the least change of countenance, and a cold, palpitating fear comes over her, lest this bud of life, so fair, so glowing, may be touched with sudden decay, and gathered back in withered form to the grave.

What is so intense, so exalted, so fervent, so pure, so nearly related to the nature of heavenly love, as the love of a mother? Wherever we turn our eyes among mankind, we see the influence of a mother's love. In our adversities and troubles, when all whom we thought were our friends have forsaken us, a mother's consoling voice cheers and soothes our troubled spirits, by whispering in our ear, that all will yet be well. How many outcasts and ungrateful children have, in all ages, borne witness to the tenderness of her heart to the returning prodigal!

I have seen woman in all the dignity and majesty of her form, the elasticity of her step, the tenderness of her heart, the brightness of her eyes, and the smiles that have adorned her countenance; I have seen her thousand winning arts, and have felt the influence of her thousand virtues; but there is nothing to compare with that love which far excels them all—it hath no equal—that heaven-born purity, a mother's love for her children. Time never obliterates it. The mellow tones of her voice are still dear, as memory bears a lingering echo of their sweetness. No hand like hers can smooth affliction's pillow. No smile can scatter a momentary gloom like that which lights up her dear countenance in moments of affliction.

The early instruction received from a mother, has the strongest influence in forming the future character of her children. Before the mind is mature enough to think for itself, we look to those whom Nature has constituted our guardians, to correct and sanction our opinions. In this way parental authority gains a hold upon the minds of children, that never can be annihilated; therefore, parents can not be too careful or too diligent in studying the various dispositions, and, indeed, all the mental as well as physical characteristics of their children. Scarcely two children can be found who require pre-

cisely the same treatment in all cases. Each child's peculiarities must be studied, and the treatment in each case must be such as, according to a deliberate and sound judgment, is best adapted to the individual; as the mental powers of children are developed, often when yet at the breast, certain traits in their dispositions are plainly seen.

The great secret in the government of children is to gain and retain their love; this inspires respect, and will induce obedience. You should never manifest anger. Tender reproof and reasoning, whenever the child violates any known rule of discipline, are much better than constant use of the rod. Obedience, based on fear, not on esteem and respect, makes a slave, and mars the native loveliness of the countenance of a son, daughter, or pupil. Harsh, scolding language and frequent correction often render a child desperate, particularly if it inherits a morose, stubborn disposition. Never resort to corporeal punishment, except for atrocious misdemeanors, or faults obstinately persisted in. When the rod must be used, by reasoning mildly and affectionately with the child, you may generally convince it of the propriety of punishment for the offense, and the sorrow you feel at inflicting it. By this means you convince the judgment, and thus preserve his esteem; in no other way can you do it. If he is naturally bad — for there are such children — punishment may make him worse. Blame cautiously for errors, and commend liberally for good conduct. Remember this important lesson, which may be applied to all stations in life, that "honey catches flies, but vinegar never." The laws which govern children from the commencement should be simple, plain, reasonable, and firm. To govern properly, you must always govern yourself. Let your own example enforce the precepts you inculcate. To train up a child in the right way, you must walk in the right way yourself. Children are close observers. Beware of partiality; it has been the ruin of hundreds of children; they quickly perceive it, and become envious, which eventually destroys all the finer feelings of affection and respect. These early impressions are seldom forgotten or obliterated in after life.

I have often heard children remark, when aroused in their feelings, of the favoritism shown by their parents to a brother or sister, while they were neglected, "Oh! Ma, you love Willie better than you love me." The merits of the favorite may justify the feelings of preference indulged by the parents, but this feeling should be judiciously suppressed, or this maternal preference will make impressions which are deep and lasting, and often establish a recklessness of character which will destroy the hopes of maternal affection. As you wish your children to become the comfort and support of your life, the pride of your family, the ornament of society, lay the foundation of

piety, that ministering angel which should accompany them through life, then when the evening of age shall come, they will remember the prayers taught them from the lips of a pious mother. How often have these led to early piety, and been the corner-stone of greatness! How important that the first impressions of children should be correct; for they are lasting, and imprinted on memory, they will tell through future time, for weal or for woe! Impress deeply upon the minds of children the importance of always speaking the truth. Falsehood is sometimes induced by too frequent and severe punishment, causing the child to resort to lying to avoid it. In other instances, parents teach it by practicing deception on their children, by making promises to them which they do not perform. They must be made to fear to do wrong, because it is a violation of right, as well as an exposure to punishment, and to hope for a recompense when they act correctly. "Train up your children in the way they should go, and when they are old they will not depart from it." Our blessed Redeemer said, "Let little children come unto me, and forbid them not, for of such is the kingdom of heaven."

The period of Infancy—the earliest spring-time of human life—how replete with tender interest? mingling with sensations of pity and of hope, we look on the tender infant, as one of the purest, holiest, and most beautiful objects of the creation; but these sensations are of comparative indifference, when compared with the feelings of a mother; her love surpasses every other, attesting the exquisite rewards of her early pains and perils. But these sensations are not unalloyed. Hope and Fear are twin sisters, harmonizing like the light and shadow of a landscape. Knowledge of the very slender thread on which the life of an infant depends, tends to increase that vigilant care, which is alone the province, and the invariable accompaniment of the exquisite maternal solicitude of a devoted mother.

In the voyage of life, our Heavenly Father has wisely ordained that our happiness shall not be unalloyed. On almost every enjoyment is entailed, by contrast, a degree of sorrow; the more intense the pleasure, the more severe will often be the pain. Such are the extremes of pure maternal love, assuming the characters of rapture or of anguish, as prospects are lighted by hope, or shadowed by fear; and especially in the infancy of her offspring, when utter helplessness claims almost every moment of a mother's life.

The system of a child is capable of constant modification: hence it is, most frequently, in our power to mold and educate the body, and to impart to it that degree of physical perfection or health which is essential to happiness. Thus is the Divine precept fulfilled, which

teaches us to "train up a child in the way he should go, and when he is old he will not depart from it."

It is my ardent wish to impress on your mind, that *disease of body* often produces *disease of mind;* that attention to early precepts and early impressions, greatly aid in attaining that degree of perfection, both mental and physical, in which high health and the requisites of moral beauty will be found. By judicious management, we may prevent the effect of those hereditary tendencies with which frequently the infant is born. In attending to these instructions, which are of great importance, the management of the infant should commence from the hour of its birth, which introduces it to a new existence, and instantly exposes it to the influence of external causes that often become the source of disease. There is, perhaps, no subject more interesting or important for investigation and observation, than the Diseases of Children, so as, by proper and judicious management, to secure to them the greatest possible exemption from pain and disease.

The periods of life treated of in this book are Infancy, Childhood, and Youth.

Infancy may be subdivided into two periods: 1st. From birth to the commencement of the first dentition, or cutting of the teeth. 2d. From the commencement to the completion of the first dentition.

The second stage, or that of Childhood, extends from the completion of the first to the completion of the second dentition.

The third stage, or that of Youth, extends from the seventh or eighth year to the commencement of puberty.

In each of these stages of life, the child is subject to distinct diseases, dependent, however, greatly upon the peculiar development and perfection of the various organs and senses of the body.

As it is all important in the constitution of a child, to lead it in the paths of health and strength, so it is necessary to commence the management of it from its earliest infancy. By neglecting to do so, and by mismanagement at the commencement of life, the original soundness of a constitution may be destroyed; the evils of hereditary delicacy or weakness, if such exist, may also increase this predisposition, and sow the seeds of future suffering and disease, which can seldom be eradicated. By care and proper treatment, however, the constitution or organization of the child may be made strong and vigorous, and health imparted to those whose sickly and feeble frames denote a deficiency of the vital energy necessary to form a good constitution; for susceptible as children are of every impression made upon the mind, as well as upon the physical system, it can not be doubted that innu-

merable modifications or changes may be made. Indeed, it is nearly, at all times, in our power, by care and attention, so to mold or form their habits and dispositions, as to give them that degree of physical perfection and command of the passions which is requisite for health and happiness; for we are all, in a great degree, the creatures of habit and education. As they are first fashioned by instruction and example, so they grow; for we all know it is, "Mother, you told me so."

Then let me urge the importance to every mother, who seeks with unceasing solicitude the welfare of her children, to attend with care to early instruction and example; for to her management is given the delightful task of directing the dawnings of intellect, of guarding the budding and blossoming period of life. Exert, then, your reason in this important matter, and look forward with that confident expectation and hope, that when the winter of old age shall bring infirmities upon you, your child will be a ministering angel, and, by affection and tenderness, prove a comfort to you in the decline of life.

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## DIET AND NURSING OF CHILDREN.

More than half the diseases from which children suffer, are caused by the injudicious treatment they receive at the hands of those who can have no excuse for their ignorance. The influence of the brain on the digestive organs is direct. During Childhood, when the brain is, in common with other organs, in a state of great activity and rapid development, the proper arrangement of diet is of the greatest importance. Cheerful activity, cleanliness, dry, pure air, adequate clothing, and a suitable regimen, are indispensable promoters of health. Horses and cattle are carefully fed with the food that suits them best; and by humane people greater care is bestowed upon them than the majority of parents give to their children. Some may think we are coloring too highly our statement of these things; all right-minded parents love their children too much, to willingly injure them. Still we may kill them by misguided kindness. Look into society as it is at present constituted, and your own knowledge will furnish many examples of grievous wrong done to children, by parents violating the physical laws of their being. We know many instances where children, if they are not removed when young from the deteriorating example and pernicious training of their parents, will, in all probability, become gluttons and drunkards. High-seasoned and unwholesome food is given in such large quantities, and at such irregular times, that unnatural

appetites are created, and digestion impaired. Stimulating and poi sonous substances are administered to them to invigorate their sys tems, which have quite the contrary effect, and lay the foundation for all kinds of maladies in future years. Some mothers stuff their children the year round with unwholesome, exciting, and stimulating meats and drinks, until they become complete gourmands, and their whole thoughts are occupied with what they shall eat, what they shall drink, and wherewithal they shall be clothed. If parents would give their children good, wholesome, nourishing food, their only drink water, and let strict regularity and punctuality be observed in regard to their times of eating, a gradual change for the better would distinctly mark the rising generation, for it is most certain that parents can not be too particular about the dietetic habits of children. Their happiness here and hereafter greatly depends upon right physiological training or treatment in early life. Yet how many mothers make their table a snare to their offspring, by pampering their appetites and loading their stomachs with improper food!

1st. Of Food.—The mother's milk is the best food. What the mother has to look to is, that her milk is of the best. She must preserve her own health by wholesome diet, air, and exercise, and by keeping a gentle and cheerful temper. Many a babe has had convulsions after being suckled by a nurse who had a great fright, or who had been in a great passion. A mother who has an irritable or anxious temper, who flushes or trembles with anger, or has her heart in her throat, from fear of this or that, will not find her child thrive upon her milk, but will have much to suffer from its illness or from its fretfulness. She must try, however busy she may be, to give its food pretty regularly, that its stomach may not be overloaded, nor long empty or craving. An infant does not refuse food when it has enough, as grown people do. It will stop crying and suck, when it is crying from some other cause than hunger; and it will afterward cry all the more if an overloaded stomach is added to the other evil, whatever it may be. On the contrary mischief—leaving a babe too long hungry—there is no need of any remarks. When the weaning time comes, it is plain that the food should be at first as like as possible to that which is given up; thin, smooth, moderately warm, fresh and sweet, and given as leisurely as the mother's milk is drawn.

The earliest secretion from the nipple of the mother is the only food or physic which should be allowed to enter the infant's stomach. If the mother and child are in health, the milk from the breast is the only food or medicine, which will be called for during the first few months of infancy, nor should children be fed with anything else until they cut their teeth.

The process of teething would then no longer be, as now, the fruitful source of those diseases which accompany its interruption, the chief of which may be ascribed to feeding and physic rather than to the teeth. Children kept to the breast, and who have never had a spoon in their mouths (except to give them water), will cut their teeth without seriously suffering by the process, if previously healthy, but under the common methods of feeding, and on all occasions dosing and drugging, the laws of Nature are perverted by impairing the general health; hence the cause of so many diseases among children — diseases which are dangerous and often prove fatal.

It is, however, the case, that children, who are feeble and sickly from birth, are often, of necessity, sustained by the spoon or bottle, especially if deprived, from any cause, of the mother's breast, and in cases of constitutional defects may require medicine; but very young children can have their bowels relieved by simple remedies, such as a suppository, or plug of hard soap introduced into the rectum, as known to every nurse or old woman. When something more active is required, then a little Sweet Oil or Castor Oil, or a solution of Manna; the last is the best and most simple purge for infants; the more simple and the less medicine given to children, the better; nor can it be doubted that hundreds of children are annually the victims of the officious meddling of nurses and doctors. Milk and Water are the natural food for a child while toothless. Giving a bit or a sip of what grown persons are eating or drinking, has often produced disease, and has destroyed many children. Most of the diseases, during infancy and childhood, arise from the stomach; therefore, the diet, and particularly the milk, should be strictly attended to.

It is a frequent practice, immediately after the birth of an infant, or as soon as the washing and dressing are done, to quiet its cries by administering gruel, or what is still more pernicious, sugar and water. It should, however, be remembered, previous to administering food, that the child has but just emerged into its newly-acquired life; that a certain time is required to arrange its various organs; and that as none of the senses seem fully developed, or capable of undergoing any exertion, it cannot be considered that the digestive organs are sufficiently settled to undertake their respective labors so soon. Instead, therefore, of feeding the child immediately after it is dressed, it should, for a short time, be put to its mother's breast, as before observed, to assist in the secretion of the milk; then wrapped warmly in flannel, that the light may be excluded from its eyes, and placed in bed, where it may have an opportunity of recruiting its strength by sleep.

The milk is the birthright of the infant; for Nature has established an instinct that impels the infant to the mother's breast, and has inspired her heart with maternal love. This beautiful link in the chain of Nature should never be separated while the health of the mother will permit, for the food

is congenial to the infant's stomach, and flows from that fountain of nutrition which Nature has bestowed for the preservation of her offspring.

How beautifully is the power of Nature exemplified in the case of the Venetian mother, who, seeing, with extreme agony, her infant creeping toward the edge of a precipice, suddenly unfolded her bosom to its view, and by that powerful magnet and the endearing tones of love, instantly drew the child from destruction to her trembling arms! I may likewise add the bright example of the Grecian daughter, who, by the stream from her swelling bosom, successfully fed her feeble and imprisoned father, and thus illustrated the sacred value of that bosom's balm which could, as it were, resuscitate the second childishness of age.

In relation to diet, then, the milk of the mother, when it is possible, should constitute the only food of the infant, for four or five months, if the mother's milk is healthy. Of its good quality these are the proofs: It should be secreted in sufficient quantity, possess an agreeable sweet taste, and but very slight odor or smell; its consistence should be that of cow's milk when settled; it should be faintly tinged with blue, without *streaks*, and should possess the property of coagulation or curdling, which may be proved by dropping into it a small quantity of vinegar. If the mother's breast contains milk at the fourth or fifth hour, and it should suddenly accumulate, or quickly fill the breast, the child should be applied to it, to prevent its swelling or becoming distended, which renders suckling more difficult and painful. This early suckling is more for the benefit of the mother than her infant, so that the breast-pump may be resorted to, to prevent excessive tension of the breast. So soon as the infant is dressed, it should be placed to the mother's breast again and again, whether or not there be any secretion of milk, for the suction will soon bring it. This course of proceeding is clearly pointed out to us by that all-wise physician, Nature—for the secretion of milk in the breast of the mother seldom takes place until subsequent to the birth of the child.

There is also another and most powerful reason why infants should not be stuffed with gruel and other fluids, which, it is most important, should be attended to: During the growth of the child, *in utero*, a dark viscid matter is collected in the bowels, which it is necessary should be expelled previous to nourishment being conveyed into the stomach. The fluid first secreted in the breasts of the mother is called Colostrum; it possesses peculiar purgative properties, and is obviously intended to clear the intestinal canal of the Meconium (the dark viscid matter) accumulated in it; its fluidity also renders it the most proper food for the stomach to digest. So long as the child seems satisfied, and sleeps after it has been at the breast, it is unnecessary to have recourse to any artificial feeding; but if the secretion be so long in forming as to render it requisite to give some other nourishment, it is advisable that it be a substance as nearly as possible imilar in consistence to that pointed out as the natural food. About half an hour

previous, however, to the administration of the artificial nourishment, some mild aperient medicine should be given in lieu of the Colostrum—such, for instance, as a small teaspoonful of Castor Oil. Where it is indispensable to feed an infant, a little New Milk should be warmed and added to about a third of water, in which a few Caraway-seeds have been boiled; it should be given in small quantities, and discontinued immediately if the mother has a sufficient supply of milk to satisfy the infant.

It is curious to observe the link or connection that exists between mother and child; for, as in the first instance, the milk is thin, so does it increase in quantity and consistence as the child advances in age and gains strength. It is obvious that this is all the nourishment requisite; and where there is no obstacle to oppose it, no other food should be given for seven or eight months. At that period, should the child be healthy, it should be accustomed to a meal once in the day, to prepare the stomach for the change of diet which must ultimately take place at the time of weaning, which should, usually not be delayed longer than the ninth month—as, after that time, it is probably injurious both to mother and child. For this meal, a little Arrow Root is both simple and easy of digestion. Should it agree with the stomach, it should be used for a short time; then, as the digestive organs become strengthened, the Arrow Root may be changed by substituting Crackers or Bread, thoroughly boiled in water until reduced to a pulpy consistence; then mashed fine, adding a little Warm Milk, sweetened with Sugar.

It is common to regard Milk as little else than mere drink; but this is an error. Milk is really an article of solid food, being coagulated soon after it reaches the stomach. New Milk contains thirteen per cent. of digestible solids, and Skim Milk ten per cent.—that is, the former fully one-half and the latter above a third of the nutriment contained in the lean part of beef and mutton. When we consider the importance of having this article pure, and how much young children are dependent upon it for food, the extent to which it is adulterated, and the sources whence it often comes, should truly excite our attention and alarm, for the fluid sold in our cities as "Pure Milk" is generally one of the most detestable compounds that can be put into the stomach of an infant. The cows, in addition to other preparations put into the Milk, are fed with distillery slop. Under this unnatural management the cows become sick, the milk impure and unhealthy, and is frequently the cause of many serious complaints in children. How different is the Milk of to-day, in our various cities, from that which feasted the men of old; how different is the Milk from that pure and healthful article, rich and unadulterated, that may be had on any farm in our country, from the cool spring-house, with its healthy and luxurious cream floating upon the surface!

In an unadulterated state, and when taken from healthy animals, properly fed, milk is a most healthful and nutritious beverage. For thousands of years milk has constituted an important and valuable part of human

sustenance, and in many countries the milk of the cow or the goat has been, and now is, the chief support of the people. Being ready prepared by Nature for food, it can at once be appropriated by the rudest savage, as well as more civilized men; hence, from the creation of the human race to the present day, it has been, among almost all nations, an article of sustenance. For Abel brought *milk* and the first fruits of his flocks as offerings to the Lord.

When flatulence, or wind, is produced by change of diet, it will be advisable to boil with the child's food a few Caraway-seeds, tied up in a small cloth, which, though a simple remedy, may tend to remove this flatulence or wind. Uusually, however, the flatulence is caused by a disagreement of the food which should be altered, especially add less milk sugar.

Whatever the food may be, it is best to be given very gradually or through a bottle, for the child is then obliged to take it by suction, and will not swallow more than a sufficient quantity. What is very important, the salivary glands will become stimulated, and the saliva will pass from the child's mouth into the stomach with the food, which will materially assist the digestion. It is very frequently the fact that mothers, or nurses, give *cow's milk*, or milk bought from persons who greatly adulterate this article, or supply milk of many cows mixed; this practice is greatly injurious to children; from the use of such adulterated, or *impure milk*, the infant's powers become weak, and they grow thin, pale, and delicate; vomiting, affections of the bowels, and not infrequently convulsions and fits are the results; their bellies grow large; the skin is more or less covered with eruptions; they are restless, feverish, and ultimately pine and fall away to mere skeletons, and die. Children brought up in this manner, and whose health is sinking under such treatment, seldom retain food long upon their stomachs, and are subject to constant looseness of the bowels.

It will be evident from this but too true picture, that such a mode of rearing children is incompatible with a continuance of health, and that it will not only be necessary now to resort to medical means to subdue these disorders of the stomach, bowels, and skin, but also to renounce this plan of domestic treatment, and to substitute for it the simplest aliment, should any other than the mother's milk be necessary; taking care, at the same time, to administer that aliment at stated periods and in small quantities.

To enable the digestive powers to recover their tone, and the infant to regain its health, a child of three or four months old should not be put to the breast oftener than five or six times during the twenty-four hours. It is important, also, to interpose such an interval between the meals as to allow time for the food previously administered to be digested.

The most mild and bland foods, such as light Sago, Rice, Tapioca, and Arrow Root, etc., should form the nourishment for children from the age of nine months to the end of the second year, when the first dentition

will, in ordinary cases, have been completed. The author has often seen children of but twelve months old, and having but the four front teeth, biting and attempting to swallow pieces of meat. Upon addressing the mother on the impropriety of such a proceeding, the answer has generally been, "Oh! the little dear, he enjoys it so; *it keeps him quiet;* he has got *four* teeth and it can't hurt him." Little does the mother think what seeds of destruction and disease she is, perhaps, sowing in the child that might otherwise have proved her solace, and even support, in the decline of her life. Let it, then, be distinctly understood, that children should not have meat of any kind given them to masticate, until they are provided with the proper instruments which Nature has most wisely ordained they shall be furnished with, when the assimilating and other organs are in a sufficiently advanced state to begin and healthily carry on digestion. This time is about the seventh or eighth year, when the second dentition is completed.

Their food in this latter period, viz: from the second to the seventh year, should consist, as before mentioned, of light food, such as Bread, Milk, Potatoes, nourishing Soups, and such easily digestible food as will be found sufficient to satisfy and appease a child's appetite. If administered at proper and regular times and in moderate quantities you will have a healthy child, and the physician will seldom have occasion to visit or prescribe.

2d. Of Nursing.—There are many instances where a mother is hindered or prevented from suckling her infant, from ill health, or extreme delicacy of constitution, or from a failure of milk, or other physical causes rendering it entirely impracticable. In such cases it is indispensably necessary to hire a wet nurse, or what is perhaps better, use cow's milk, so modified as accurately to resemble mother's milk. Such a modified milk can be obtained in our larger cities, from laboratories especially established for the purpose. At the end of this part I will give instructions for home modification of cow's milk for those who cannot afford to buy laboratory milk, and for those who do not have access to such laboratories.

In selecting a wet nurse, let me impress on your mind the necessity of obtaining a woman in good health, one that has a proper supply of good milk, affectionate and kind in her disposition, cleanly in her habits, and free from intemperance; her age between twenty and thirty years, and whose confinement took place about the same time as that of the mother whose child is to be suckled. A strong and healthy nurse will be of great benefit to the child, in aiding it to a vigorous constitution. In the choice of a wet nurse, we cannot hope to discover, however, all these qualities, but must look to the important point — a woman in good health.

If wet nursing has been commenced, and the infant appears to dwindle, or to be disordered, the nurse should be changed, as the mischief may arise

from her milk, and not from disorder of the infant from any other cause. The advice which I have written for the regulation of the suckling mother will likewise apply to the wet nurse.

When the infant is to be brought up by hand, which is called dry nursing, great care must be used to render this mode successful by keeping the infant and its nurse almost always under the immediate direction of its mother, as it is all essential alike to the mode of administering the food, as well as to its kind or quality. The proper instrument for this purpose is a suckling-bottle, which may be purchased at any drug-store. In its use, however, great cleanliness must be used, by scalding it out after each use; on the failure of this caution, portions of the curdled milk or the sour food will be left in the bottle, or will adhere to the neck or nipple and sour the fresh milk. Of this species of artificial food, and which most resembles the milk of the mother, is the following, which should be used from one cow: Fresh Cow's Milk, $\frac{2}{3}$; Spring or Pure Water, $\frac{1}{3}$; well sweetened with Sugar, which is the least liable to acidify and cloy. The milk so prepared should be made lukewarm, or as near as possible akin to woman's milk. If necessary to preserve it by boiling, it should be quickly cooled in cold water, which will prevent its losing its nutritive properties.

The periods of feeding should not differ from those observed in suckling from the breast. When the child has cut two of its front teeth, the consistence and nutrition or strength of its food may be a little increased, by adding to the Milk, Arrow Root, Bread, or Rice Flour, or Sago, or other simple farinaceous substances. The nurse will soon discover the kind of food which is best adapted to the stomach of the child, as that rejected will be vomited up, or cause flatulence or apparent distress to the child after its being swallowed; either of these consequences will render a change necessary in the food of the infant.

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## INFANT-FEEDING.

The subject of Infant-feeding is one of extreme importance, especially when for some reason the mother is unable to nurse her child; in such a case Cow's Milk must be modified to resemble the mother's milk as closely as possible, and the amount at a feeding and the number of feedings must be strictly observed. I have taken without alteration from Dr. Holt's book on the "Diseases of Infancy and Childhood," the following tables and formulæ; personal experience has proven them to be as nearly perfect as possible:

SCHEDULE FOR FEEDING HEALTHY INFANTS DURING THE FIRST YEAR.

| Age. | No. of feedings in 24 hours. | Interval between meals by day. | Night feeding (10 P. M. to 7 A. M.). | Quantity for One Feeding. | Quantity for Twenty-four Hours. |
|---|---|---|---|---|---|
| | | Hours. | | Ounces. | Ounces. |
| 3d to 7th day | 10 | 2 | 2 | 1 –1½ | 10–15 |
| 2d and 3d weeks | 10 | 2 | 2 | 1½–3 | 15–30 |
| 4th and 5th weeks | 9 | 2 | 1 | 2½–3½ | 22–32 |
| 6th week to 3d month | 8 | 2½ | 1 | 3 –4½ | 24–36 |
| 3d to 5th month | 7 | 3 | 1 | 4 –5½ | 28–38 |
| 5th to 9th month | 6 | 3 | 0 | 5½–7 | 33–42 |
| 9th to 12th month | 5 | 3½ | 0 | 7½–9 | 37–45 |

There are three essential parts to milk, viz: Fat, Sugar, and Proteids. Cream is almost pure Fat. Mother's milk contains these in different proportions at different periods of lactation, and the proportion is always different from what it is in Cow's Milk.

The following formula is to modify Cow's Milk so as to be a proper food for an infant from one to three months old:

| | | |
|---|---|---|
| Cream (skimmed from good Sweet Milk) | 6 | ounces. |
| Plain Unskimmed Milk | 3 | ounces. |
| Milk Sugar (from the drug-store) | 5½ | even tablespoonfuls. |
| Boiling Water | 27 | ounces. |
| Lime Water | 1½ | ounces. |

"Dissolve the Milk Sugar in the Boiling Water, filter through cotton in a funnel, add the Milk and Cream, and mix all in a pitcher; then add the Lime Water and divide in nine bottles, stopping them with cotton." The bottles should be rapidly cooled by standing them in ice water for fifteen minutes, adding ice to the water as may be necessary. The food should now be kept on ice, to be used as required. It should be warmed by immersing the bottle in warm water before using. Every step should be followed out with the greatest cleanliness, and every utensil should be absolutely clean. A glass graduate holding six ounces will probably be required; it will also be best to get a regular set of nursing bottles, which are very simple and readily cleaned. A plain black rubber nipple with a hole sufficiently large to permit the milk to drop rapidly (not run in a stream) when the bottle is inverted should be used, and when not in use should be kept in a solution of Borax. Do not use rubber tubes and complicated nursing bottles, the simpler the better. As the child gets older, more Milk and Cream should be added to the above formula and less Water. This formula may not agree with all infants of this age, so that various modifications of it may be tried, as adding more Water, or more Cream, etc.

If the infant does not gain in weight as rapidly as normal, it is an indication that there is not enough Milk Sugar. Too much Sugar is indicated by attacks of colic, or thin, green, acid stools, or by eructations of gas from the stomach.

Excess of fat (Cream) is indicated by vomiting of food in small quantities, usually one or two hours after feeding; or by frequent but nearly normal passages from the bowels. Constipation, with dry, hard stools, indicates a lack of fat.

Excess of Proteids is indicated by the passage of curds in the stools. It may cause vomiting and colic.

The artificial feeding of infants, permit me again to say, is of great importance; many infants' lives may be saved by giving this subject proper attention, and with proper care at this time, constipation and other bowel complaints in after-life may be avoided, as the foundations for these diseases are often laid at this time.

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## DRESS OF CHILDREN.

MANY of the most serious consequences are entailed on the human race by bad management in infancy, and not unfrequently many diseases may be attributed to the mode of dress adopted by parents and nurses for their children. Mankind in early years is impatient of restraint, through the restless activity incident to youth, which makes it delight to be in perpetual motion, and to see every thing around it. See the happiness and delight a child expresses, by its features, every time it is undressed and rubbed with a soft hand; observe the pleasure it experiences as soon as it is taken out of the fetters in which it is bound. It instantly ceases crying; no sooner is it undressed, than it begins to smile, and to show signs of joy; even though it should be hungry now, it proves, by its joy and its movements, that it wanted liberty much more than the breast. Bandage it up again, it becomes uneasy, its countenance is sad, and its cries are renewed. It should be borne in mind, that the sole object of clothing a child is for warmth, and not for the purpose of giving it support, as is generally supposed. Upon the first sight of a new-born infant, every one is struck with the idea of its weakness and helplessness; it is designed to be weak and tender in its infant state, as indeed is every similar object. Take a survey of Nature, from the first opening leaves of the vernal flower, or the more delicate foliage of the sensitive plant, to the young lion or the elephant; they are all, in their several orders, proportionately weak, and can not exist without some exterior support. But they have need of nothing but what Nature has prepared for them. If seed be cast into a proper soil, it wants only the surrounding elements to insure vigor and maturity. So, if the tender infant be born of healthy parents, and at its full time, it is usually sufficiently strong. Proper food and nursing are the elements whose fostering influence it requires; if it have these, it will need nothing more.

It is true, the new-born infant is very weak; but is it, therefore, to

be tightly rolled, under the idea of supporting it, and giving it strength! A child is nothing more than a mass of tender vessels, through which food is to pass, and when digested, be distributed throughout the body; these vessels are, therefore, soft and flexible, capable of yielding to the impetus of their contents. Hence, we can not but perceive how injurious any great pressure must be to so delicate a frame. Nurses often seem to feel it to be a part of their duty to bind infants up with thick rollers, flannels, and wrappers, all ingeniously tightened and fastened, with so many strings and pins, that you feel amazed when you see how adroitly they succeed in placing the poor little child in confinement and misery.

Looseness is very important in an infant's dress; there should be a free circulation of air between the skin and the clothes, as well as a slight friction upon the surface. All confinement distresses, and when it amounts to tightness, it may, and does, frequently occasion deformity before the evil is suspected. Full room should be allowed for the increase which is continually and rapidly going on. For this reason every part should be fastened with strings; and, in tying these strings, the greatest care should be taken not to draw them too tight. And it is proper, after the strings have been tied, particularly those under the chin and round the waist, to ascertain by feeling with the finger that the dress is not drawn too tight. Pins should be used as seldom as possible. The growth of children is so rapid, it is proper to examine their clothing frequently, as a few weeks will make a great difference in relation to the size, and the pressure or restraint is often the cause of much crying and fretfulness; it is, therefore, proper that children's dresses should be made so that they may be easily enlarged, particularly round the waist, throat, and arm-holes, and across the chest and back. Bandages round the head, or tight caps, or any thing which compresses the brain, should be strictly avoided. Many instances of Idiocy, Fits and Deformity, are owing to tight bandages; not unfrequently infants are very restless at night, owing to tight night clothes.

The more easily the dress can be put on and off, the better and more comfortable for the child; there should be no other fashion than what is dictated by convenience and comfort. Long clothing or skirts confine the infant and prevent the activity of the limbs, so essential to a free circulation of the blood and advancement of its growth. Loose gowns, fastening in front, are therefore preferable to frocks, for two or three months, however less fashionable. All unnecessarily stiff clothing should be avoided; every thing which surrounds the body of an infant should be soft, and of a yielding nature, so as to prevent any painful pressure upon the muscles or bones, or excoria-

tion or chafing of the skin. Every article of the child's dress should be made and arranged—regardless of fashion—so as to be adapted to its comfort and health; this will consist principally in guarding against the variations of external temperature, in preserving a genial warmth for the maintenance of the various functions, and in protecting the body and limbs against external injuries. Pride and Fashion must always be laid aside when they interrupt the comfort or health of the child. This, however, unfortunately, is not the case with some foolish mothers, who would rather risk the life of their infant, than deviate from the last style of dress which Madame Humbug has lately received from Paris.

Were it possible for us to visit our fashionable circles, we should behold the embroidered lace, worked ruffles, and stiffly starched linen, scratching and chafing the tender skin of the poor infant, and perhaps some important regions of the body entirely unclothed and exposed, and others superabundantly clad. Amidst this empty pride, every consideration of comfort, and the health of the child, is entirely overlooked. Probably a course nearly opposite to this is pursued by those filling the humbler walks of life, whose means are not adequate to the ever-varying demands of Fashion, but who have the satisfaction of seeing their children in the enjoyment of uninterrupted health and vigor of constitution, by pursuing a course which their circumstances will not permit them to deviate from. This is usually the cause that health, in particular, is the blessing of the poor, while the rich are more generally the subjects of disease.

One of the most important parts of an infant's clothing is a soft flannel bandage, commonly called the belly-band, which is intended to give support to the abdomen or belly, particularly the navel. It likewise supports the internal covering of the intestines, and prevents the child from any distention, or a big belly. In putting on this support or bandage, you must recollect that between support and pressure there is a distinction: the first is very important to health; the second is the cause of many serious diseases, such as Rupture, which is owing to neglect or ignorance in putting the bandage on properly, so as to avoid pressure. Besides, the action of the bowels is impeded by this compression, occasioning great pain and constipation or costiveness. It should be taken off morning and night, and put on smooth and carefully. A clean one ought to be put on every two or three days, as it is apt to get wet and rumpled, and unfit for use till washed and ironed. With some children I have found it necessary to use it for many months, to prevent an enlargement of the abdomen or belly, and delicate children are sustained by it in their attempts to sit up.

As regards the quality of clothing best suited to the infant, flannel

is, perhaps, more extensively and advantageously used than any other article of which clothing for children is made. Public sentiment, as much as it is perverted on many subjects connected with the management of infants, appears to be right on this. The superiority of flannel to other substances used, consists: 1st. In its protecting power against sudden reduction of temperature—that is, its non-conducting power prevents the natural heat escaping from the surface of the body when the surrounding temperature is materially lower; wool being a better non-conductor of caloric than flax or cotton, is consequently better adapted to the purposes of wearing in cold or variable weather 2d. In guarding the body against the cooling effects of evaporation. When the surface of the body is bedewed with perspiration, the flannel prevents too rapid an escape of the warmth from the body; and as it passes off gradually, the moisture is absorbed by the flannel, whence it evaporates imperceptibly. Thus, it is perceived, the temperature of the body can be but little affected during the process of "drying up of the sweat," as it is called, which must be otherwise, were linen or muslin employed in its stead, because they conduct off the heat much more rapidly, and absorb the moisture with less facility; hence a cold dampness must, of course, pervade the surface of the body during the drying process, and hence the advantage of flannel next to the skin. 3d. In producing over the surface of the body a healthful and "agreeable irritation," by means of which an insensible perspiration is advantageously promoted—a function indispensable to the health of the child. Its use, in this respect, approaches in effect that of the flesh-brush; by producing this grateful action upon the skin, it equalizes the circulation; the blood is being constantly invited to the surface, which lessens the liability to congestion of the internal organs, by its being thrown upon them in too great abundance.

From these considerations it is evident that flannel next to the skin, in cold and variable seasons, not only adds to the comfort, but also exerts a salutary influence on the health of the child—so much so, that its adoption can not but be considered an important, if not an indispensable, item in the successful management of the infant.

Flannel is to be preferred for children; it keeps the body in that degree of heat which is most agreeable, as well as most suitable, to the functions and actions of health. The perspiration is necessarily increased; the matter perspired is conveyed though the flannel to the atmosphere, and the skin remains dry, warm, and comfortable. Flannel coöperates with the powers of generating heat in living systems, and thus constantly preserves us in that temperature which is most pleasurable, as well as most natural and beneficial.

Dr. Dewees, Professor of Midwifery, of Philadelphia, says: "There

is a very common error upon the subject of flannel, which deserves to be corrected, namely: that it can remain longer dirty, without doing mischief by its filth, than any other substance; but in this there is no truth—flannel, from its texture, is capable of absorbing a great deal of fluid, which it will retain so long, if permitted, as to allow a fermentative process to go on, and gives rise to the extrication of some deleterious gases; therefore flannel should not be worn even so long, on this very account, as linen substances."

The flannel should always be of the white kind, where the circumstances of the parents will permit it—not that the first cost of the white need be greater than that of the colored, but because it will, for the sake of the eye, require to be more frequently changed, as it will more readily show any dirt that may attach to it; but, for this very reason, it should be employed whenever it be practicable. Another reason may also be assigned: the white can always be procured of a finer quality, which is always desirable.

The principal articles of clothing are to be made of fine flannel; these generally are the under-clothes. Fashion, caprice, or fortune may regulate the rest, provided the garments for the feet and legs be excepted.

We are confident that if more attention were bestowed on the real necessities and wants of children in suitable clothing, and the system preserved from sudden changes, infantile suffering would be greatly diminished, to say nothing of the long list of chronic complaints by which it may be tortured in after years, and the whole life doomed to wretchedness and misery, by fashion and neglect to preserve a uniform warmth over the whole body and limbs—a legitimate means of insuring health and comfort to the child.

Do not tie the infants' legs up tight, leave them loose, so that the child can kick and exercise; this is important and is often not heeded. This is a form of exercise for their little legs which is just what they require.

## CLEANLINESS.

This is very important in relation to the health of children, and a strict adherence to cleanliness will be the means of warding off many diseases, without the aid of a single dose of medicine. A propensity exists to consider disease as an extraneous something thrust into the system, which must be expelled by force or active remedies, before health can be restored, and with which the mode of management has little or nothing to do; whereas, disease is nothing more than an aberration from the regular mode of action of the organization, generally caused by errors in diet, and often removed by a right course

and simple remedies. In my opinion, the habit of giving medicine to children for every little uneasiness, is wrong. The evil is, in many instances, aggravated, and instead of being cured, many children are thus destroyed by medicine, who would have been restored to health by bathing, simple diet, and well-directed care.

As the skin is the principal regulator of temperature and the medium by which the balance of the general functions is preserved, it is manifest that its state is of such vast importance, that the means of preserving its health can not be too strictly attended to. Different opinions have been expressed as to the temperature of the water in which a new-born infant should be washed. Cold water, in my opinion, should never be used. Reason and experience teach us, that to plunge a newly-born infant into an element so diametrically opposite to that in which its previous existence has been passed, is necessarily to expose it to dangers of the most serious character. It is contrary to the general rules of Nature; for as time is required to perfect all things submitted to her laws, and as the uses of the senses and limbs are all gradually developed, so must it be with the means employed to render an infant hardy and capable of bearing the Cold Bath. All changes should be gradual. Let it be first accustomed to breathe the surrounding air; then let its tender frame be so far inured to its new life, as to have acquired some innate heat; then begin to use by degrees cold water, first agreeably warm, then tepid, and after using this bath for some time, then lessen the temperature until the infant becomes accustomed to it. The child should be thoroughly cleansed, and then, if in winter, or damp weather, well rubbed before the fire, to increase the circulation, taking the greatest care to avoid exposure, which might produce cold, running at the nose, inflammation of the eyes, etc. If the child is healthy and the weather mild, after the first week or ten days, the warmth of the water may be gradually lessened, till at last, if it appears to agree with it, the cold water may be employed. Frequent bathing is not only conducive to cleanliness, but it imparts vigor or strength to the muscles and nerves, and permanently establishes a healthy constitution, both of body and mind.

The Cold Bath is not only beneficial to children in health, but to those that are sickly, especially those who are afflicted with Rickets. This complaint has been frequently cured by the Cold Bath; it may be used three or four times a week; a sudden dip, twice repeated each time of using the bath, will be sufficient. It will be proper to begin the practice of dipping the child in warm weather, and continue it through every season after. When the child is delicate and weakly, always take care and use the Cold Bath gradually; if the shock

appears too powerful for the constitution, then substitute sponging the body, or bathing it with salt and water, lukewarm, or cold; this will be similar to sea-bathing, which is highly beneficial where there is a tendency to catch cold upon the slightest exposure.

An infant usually cries considerable while washing and dressing. When not violent, and it continues to cry, it is more beneficial, by giving exercise to the lungs, voice, and respiratory organs, than perhaps any other exercise, being so ordered by Nature. As they increase in years and acquire other powers, crying is diminished. Tenderness and soothing kindness are, however, in all such cases necessary; for when roughly handled, the sight of water and other preparations produce fear and suffering, but by persuasion and pains the child will regard washing, after a short time, as a source of comfort. Amuse it, then, with a playful, gentle tone of voice, and every painful dread will fade away, and habit will establish it rather as an amusement than otherwise. As soon as children acquire the power of voluntary motion, they necessarily make themselves dirty, and it then becomes essential for their health, to wash them frequently. The pleasure in washing, or accustoming them to it, greatly depends upon the manner in which they are handled; if roughly pulled and jerked about, with angry feelings, and washed with no regard to comfort, tears, crying, and dislike, will naturally accompany the efforts of the mother or nurse to keep them clean.

Immediately after bathing, the child should be well dried, made comfortably warm, and if it is disposed to sleep, allow it to do so; when dressed, permit it to have exercise. Children should not be bathed immediately after a meal. Weakly children, using the Cold Bath, should wear flannel next to the skin. Although the Warm Bath is rarely employed, except in disease, yet both the Cold and the Warm Baths are used as remedies against eruptions of the skin, by washing off those saline and acrid particles which are left upon it by perspiration.

In all chafing, which is more or less frequent, from the clothes necessarily used, the use of Cold Water is preferable to any other remedy; after which grease the parts with Vaseline or dust with a dusting powder, such as equal parts of Boric Acid and powdered Zinc Oxide.

Diseases are frequently engendered or produced by a neglect of proper cleanliness; from not airing beds, blankets, etc., and not unfrequently closets and drawers are the receptacles of many articles of filth, which ought to be removed.

The practice of observing cleanliness with children is not only essential to comfort and health, but will be the means of saving you from many a doctor's bill, and will likewise so establish the constitutions of your children that they will require but little medicine

Every kind of clothing should be aired before a fire previous to being put on; and all flannel garments, in particular, require to be carefully dried in this manner. Either damp linen or flannel, dried upon the person, must, of necessity, produce evil consequences, especially where, as with infants, there is little exercise. The quantity of clean linen they require, makes caution upon this point still more important.

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## PURE AIR.

As nervous sensibility predominates in early life, and its excess forms an ingredient in almost every infantile disease, it is of the utmost importance, in the management of infants, to pay attention to all those circumstances and agents which tend to strengthen and invigorate the nervous system. Of these, *pure air* is, perhaps, of equal importance with wholesome food. When a child, pent up in the confined and impure air of our cities, has become emaciated by Teething, and perhaps brought to death's door by Cholera Infantum, it is surprising to see with what rapidity it is restored on removal to the pure air of the country. This seems to be a specific for nearly all the disorders which arise from Teething. Accordingly, all our writers on Diseases of Children, recommend this as indispensable, and the only remedy, almost, which is needed. Connected with improper food, impure air is the great cause of the excessive infant mortality in our American cities. This is shown by the fact, that a large proportion of the deaths under five years, occur among the children of the poor, who are crowded together in filthy, ill-ventilated apartments, and who pay no regard to personal cleanliness. Cooped up in small rooms, with a coal-stove in the center, on which all the cooking is done for the family, thus breathing an atmosphere reeking with all kinds of impurity, and which is never renovated, how is it possible for a young infant, under such circumstances, to survive the process of Teething; or if thus fortunate, to go safely through those numerous disorders which, at some period, sooner or later, most children have to experience? The sulphureted hydrogen gas which escapes from our coal, is exerting a most deadly influence upon the health and lives of infants and young children in all our large cities, and, we believe, is one of the causes of the gradual increase of mortality among this class of our population.

We have, within our own practice, witnessed several instances where the death of the child was manifestly owing to this cause. In a poor family, to which we were lately summoned on account of

convulsions occurring in one of the children, we found the air of the apartment absolutely irrespirable from this cause, and every one of the family, consisting of eight persons, complaining of faintness, giddiness, want of appetite, and numerous other symptoms, which we might expect in such a case. The removal of the stove and the substitution of a wood fire, sufficed for their speedy restoration to health.

The importance of the free ventilation of nurseries, and the sleeping apartments of children, is not sufficiently appreciated. There is a great difficulty, we are aware, owing to the construction of our houses, in preserving the temperature at a proper hight in winter, and yet providing for suitable ventilation; but, if it can not otherwise be done, so highly do we estimate the value of pure, fresh air by the young, we should, as a general rule, recommend free ventilation, even at the expense of lowering the temperature. Of the two evils, the latter is the least.

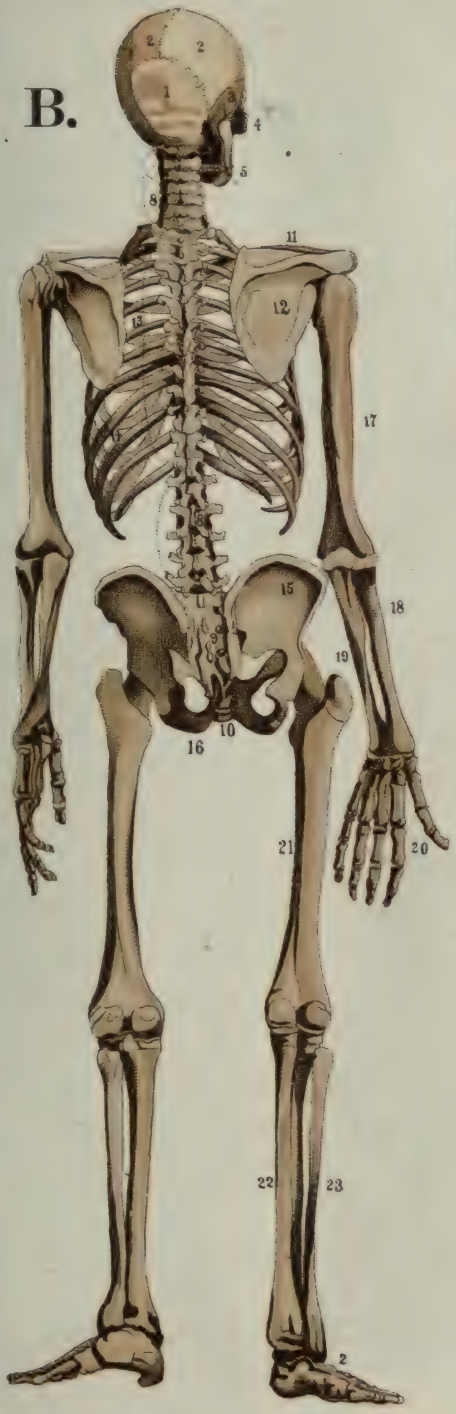
Nature requires and provides that the tender frame should be nourished with food, air, warmth, and light, sleep and exercise. All these being given to it, the soft bones will grow hard and the weak muscles firm; the eyes will become strong to see, and the ear to hear; the different portions of the brain to feel, apprehend, think, form purposes, and cause action, till the helpless infant becomes a self-acting child, and is on the way to become a rational man. What the parents have to do, is to take care that the babe has the best of food, air, warmth, and light, sleep and exercise.

Moreover, the organs of respiration will continue healthy or become diseased, in accordance with the nature of the atmosphere, or as the air is pure or impure; and as they become deranged, the blood becomes vitiated just in proportion as the air becomes impure. Air that has been frequently breathed, being deprived of its oxygen and charged with carbon, is thus rendered unfit for breathing. This should always be attended to, taking care to admit fresh air, and purify it in those apartments which are inhabited by children. Children evince uneasiness by crying or fretfulness. A constant recurrence of irritating causes render them habitually fretful; they are, therefore, injured morally as well as physically, by breathing an impure atmosphere. The mother, or nurse, being subjected to the same influences, her temper and nervous system become affected by the same cause, and increasing irritability prevails, destructive of true maternal and filial feeling.

As long as such ignorance exists, we need not wonder at the abuses which are witnessed in relation to the medical treatment of infants and young children. Under judicious treatment, disease will rarely

# THE BONES.

B.



D.



## D The skull, as seen from below.

1. The palatial part of the upper jaw.
2. The facial part of the upper jaw.
3. The bones of the palate.
4. The sphenoid bone.
5. The vomer.
6. The temporal bones.
7. The petrous-temporal bone.
8. Fundamental part of the occipital bone.
9. The supra-occipital bone.
10. The occipital foramen.
11. Posterior aperture of the nasal cavity.
12. The styloid process of the temporal bone.
13. The cheek-bones.
14. The parietal bones.
15. Jointed parts of the occipital bone (for articulation with cerveral vertebra).

## B—The skeleton, as viewed from the back.

1. The occipital bone.
2. The parietal bones.
3. The temporal bone.
4. The cheek-bone.
5. The lower jaw.
6. Cerveral vertebrae.
7. Thoracic vertebrae.
8. Vertebrae of the lower spine.
9. The sacrum.
10. The coccyx.
11. The collar-bone.
12. The shoulder-blade.
13. The false ribs.
14. The true ribs.
15. The pelvic bone.
16. The haunch-bone.
17. The bones of the upper arm.
18. The radius.
19. The ulna.
20. The bones of the hand.
21. The thigh-bone.
22. The shin-bone.
23. The splint-bone.
24. The bones of the foot.

prove fatal to children, especially where their previous management in relation to fresh air, diet, exercise, clothing, etc., has been proper. The progress and result of infantile diseases are, therefore, in a great degree, under the maternal control. How important, then, that that control be guided by wisdom and knowledge!

Considering the defective food and clothing of the children of the poor, and the condition of their dwellings, it is evident that much of the health which they possess is owing to their spending the greater part of their time, during the day, in the open air. This fact, in itself, ought to impress upon all mothers the propriety of preserving a constant freshness and purity of atmosphere in the apartments of their children; at the same time, however, taking care to prevent the rushing of cold draughts from the doors and windows, as such an imprudent course may produce Colds, Croup, and various other diseases quite as dangerous as those which may arise from the want of ventilation or pure air. There are many important considerations connected with pure air, which require constant attention, and more particularly where there are children. Among these may be mentioned the instant removal of dirty linen, and all other offensive matter, and the thorough drying and airing of clothes, bedding, etc. This is not only essential to health, but has a great influence on morals also, for we are greatly the creatures of habit.

Dirt and Indelicacy are twin sisters. A disregard for the decencies of life is too often a step toward indifference to its virtues. For these reasons, as well as for security to health, *habits of cleanliness and delicacy should be formed early.* Children acquire these habits, or disregard them, in proportion as the manners of those associated with them are indifferent or careful. When a systematic and proper attention is paid to their personal necessities, children soon feel the influence of such habits, though they may neither reason nor reflect upon them. A sense of comfort and self-respect is thus indelibly fixed upon them; and, from custom, a sense of propriety eventually becomes a part of their character. It is, indeed, a rule, which admits of general application, "Train up a child in the way he should go, and when he is old he will not depart from it." When the trials of life come, how his heart flows out in the loved remembrance of the dear mother whose fondness and instructions are indelibly impressed upon his mind!

Pure air being the great promoter of healthy action in all the body, but especially in the liver, lungs, and skin, therefore, is more conducive to the vigorous performance of the digestive functions, and also those of the brain. But in damp or cold weather, it is, of course, essential to be guarded against every change or exposure, as this is most frequently the cause of Croup, Colds, Fever, etc., in children. The effect

of deficiency of pure air, is an ever burning heat of the skin, followed by profuse perspiration, thirst, hurried breathing, restlessness, agitation, palpitation of the heart, fainting, and fever. A healthy man spoils, by breathing, about fifty-seven hogsheads of fresh air every day. All living bodies must breathe oxygen or die. All the animal functions are maintained by the incessant play of affinities between the atmosphere and the organs, and all are conveyed directly to the blood. To show you the importance of a fresh supply of air, we breathe about twenty times a minute—

**20 distinct and separate impulses in 1 minute;**
**1,200 in 1 hour;**
**28,800 in every 24 hours.***

See the effect this must have in making foul, confined air, and how much health and life depend on a copious supply of fresh air; how, then, can people overlook this plain fact, that to live healthily we must have a full supply of pure air! There can be no doubt that the majority of attacks of fever so frequent among the poor, are produced by want of free ventilation; their sleeping apartments generally answer all the purposes of cooking, washing, and other domestic purposes; crowded closely together, especially in the winter season, excluding much pure air, they try by a stove to obtain warmth, which poverty forbids them to procure by a cheerful and ventilating fire. In proportion to the vitiation of the air by the breath, and by exhalations from the body, it becomes capable of receiving and conveying the infectious seeds of disease. Thus Typhoid Fever is often produced, and communicated wherever the ventilation is deficient. Thus has Ignorance often prepared a soil for the growth of Pestilence, in every age and every clime. Not many years ago we received a terrible proof of the danger of a want of supply of fresh air, by the suffocation of seventy poor Irishmen, women, and children, in the fore-cabin of a steamer between Dublin and Liverpool. Neither the captain or mate reflected that by closing and nailing up the only entrance of air to the cabin, they as effectually killed the seventy fathers, mothers, and children, as if each had been cast into the sea. They all died in a few minutes, and the only excuse for the dreadful deed was ignorance or thoughtlessness.

The voice of Nature, and the neglect of her laws, teach us, that no truth relating to our nature can be neglected with impunity. Whatever depresses the vital energies, predisposes to the reception of

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* The reader is referred to the complete discussion upon "Ventilation, Pure Air," etc., given in the Treatise near the close of the volume, under the head of "Domestic and Sanitary Economy."

disease. Whatever tends to promote the general vigor and orderly operations of life, tends, from infancy to manhood, to fortify and strengthen the whole system against all external as well as interna. maladies.

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## SLEEP OF INFANTS.

The repose of the muscular system is never completed, except by sleep. With this "sweet restorer" the infant's system is invigorated, strengthened, and the organism bestowed by Nature confirmed by growth, strength and health. Hercules, tired of his toils, and the infant, weary of his play, rest alike in their helplessness. The Lord of life, and of death, gently, and with equal hand, will close their eyelids, and with the breath of life, when morning dawns, refresh all their faculties. Half our days from infancy to manhood are passed in the shadow of death. Sleep, however, is only so far like death, that the mind is withdrawn from the outward senses, by an influence beyond our control, and instead of death, we experience only in sleep the renovation of the powers by which the soul operates in the body. The quantity of sleep required by an infant or grown person must depend greatly on the facility with which the power of the nervous system is restored, and this is determined by conditions utterly beyond the power of research or science to discover.

It is remarkable that young and growing animals need most sleep, and that the soundest sleep occurs before mental consciousness is evinced; as for instance, in new-born infants, the child partakes of instinct so fully, that there is no necessity to promote sleep, but only to prevent its disturbance. Physical comfort is all that is needed; and this is to be obtained by whatever secures health—namely, sleep, proper diet, warmth, cleanliness, and pure air.

For the first few weeks, noise seldom disturbs an infant; this is owing to the sense of hearing being dull. Habit, however, has a powerful influence; therefore, sleeping in the arms, or on the lap, should as much as possible be avoided. A child accustomed to this indulgence, will not rest long in its bed. The early habit of putting a child to bed awake, and leaving it with necessary caution and watchfulness, will eventually save a mother much fatigue, and so form habits from the beginning that will eventually save much inconvenience.

On laying an infant down, on the bed, or in the cradle, it should be wrapped up comfortably warm, so that the feet and hands are not exposed, the body being laid in a straight position, and the head and

shoulders being raised a little by the pillow. Blankets are better than sheets. The covering should be so arranged that, while there is sufficient space to breathe freely, the face is not kept too warm. A change of posture is likewise necessary, so that it may not be cramped by lying too long in one position.

It is better always to quiet the infant by rocking gently, patting it on the back, when restless or crying, if not long asleep. If these means fail, it should be taken out of bed, and quieted in the arms. An infant ought never to be kept awake when fatigued, under the impression that it will rest better at night. Over fatigue produces general irritability, pain in the limbs, fretfulness and restlessness.

It is best that infants should sleep alone, for the air of a bed in which one or more grown persons are sleeping, becomes impure; the child inhales the exhalations produced by sleep, and is in danger of being overlaid—an accident by no means uncommon.

The usual position of an infant should be nearly horizontal. In the perpendicular or sitting posture, the soft and flexible condition of the bones of the spine, then scarcely more than cartilage, allows them to be readily bent, or to project in an angular form—an injury which, if not speedily relieved, leads to permanent distortion. This distortion is sometimes produced by the mother or nurse violently shaking the infant during the cartilaginous condition of the bones; an error in nursing which, like the violent rocking of a cradle or chair, or swinging, may cause disorder of the brain.

As I have before remarked, with regard to the custom of nursing infants too constantly on the lap, the nurse often expands or opens her knees, which forms a hollow, the infant thus sinks into this cavity or space, by which its spine is consequently *curved* outward, a form which, by constant bending, becomes permanent, and deforms the child by giving it a *humpback*.

In warm weather a quilt or mattress laid on the floor, and the child allowed to exercise the limbs, and roll to and fro, will be very beneficial. By this custom, the child will be highly gratified, and the freedom will make it healthy and robust. A mattress is the best bed for children. The feather bed so confines the limbs as to prevent that lively motion, and free circulation of the blood, which are conducive to perfect health. Weakness also will ensue from the continual perspiration which a bed of feathers induces, and the infant's lungs may be injured, should it have any predisposition this way. We should, therefore, remember, that during sleep the infant should be strictly attended to, so that the temperature of the body may be regulated carefully and kept as warm as necessary. Extremes

of heat and cold are highly prejudicial to the child, and not unfrequently the covering being displaced during sleep, will cause exposure, which may produce serious diseases, as Croup, etc.

Infants can not sleep too long. To awake them with a noise, or in a sudden manner, is extremely improper. Suddenly exposing them to a glaring light, lays a sure foundation for weak eyes. Never administer spirits or drops to make the infant sleep, if it be possible to avoid it. Let their diet, as they grow, be simple, and the more simple, the better will they increase in health and thrive. A wakeful or a fretful child is a great trial to a mother's patience, and every arrangement that circumstances will permit, as regular bathing, nursing, and exercise, should be used, which simple treatment, by degrees, will gradually accustom it to sleep quietly. Any harsh or impetuous treatment, either by scolding or slapping, is extremely improper.

In training young children, it is to be remembered that early impressions become indelibly fixed; therefore, the habit of regular nursing, and hours of being put to bed, or those which relate to sleep, should be established. Children are naturally early risers; the morning sun awakes them. This disposition should always be encouraged. They should be sent early to bed, and immediately, on waking at a proper hour, should be dressed and washed, as lying awake for a long time in the morning induces languor and other evils.

The *motive* powers of a child should be allowed to find, as it were, their own level. It should be permitted to gradually commence creeping, which generally is begun about the sixth or seventh month. Great care must be observed at the time when it first attempts to raise upon its knees, or to climb up the legs of a chair or the table, lest it be allowed to remain too long in an upright position, especially if the body and head be disproportionately large and heavy, as curvature of the spine or backbone, or long bones of the legs, and not unfrequently a disease called Rickets may be produced thereby.

Children should be kept, during sleep, as separate as possible, as their dispositions to slumber are seldom simultaneous. The restlessness of one will prevent the sleep of the other and sleeplessness then becomes a dangerous habit. In warm weather, too, one will often throw off the clothes when the other is in a state of comparative chilliness, in which condition an exposure to increased cold may be most prejudicial to the child, and induce disorder.

Calm and long-continued sleep is a favorable symptom, and ought to be cherished rather than prevented during the whole period of infancy. But wher the child starts, or jerks in sleep, attended with sudden, loud cries, as in a fright, or a low moaning noise, it is an evidence that it is not well, and should be at once attended to;

the difficulty may arise from error in diet, dress, slight exposure, or colic; from sleeping too long in one position, in consequence of which the sleep becomes more or less disturbed, or a wrong position of the body may impede some important functional operations, as digestion, respiration, circulation, etc.

In closing, we must urge strict attention to the child's sleeping clothes, needful for health and comfort as well as preventing extensive excoriations of the groins, chafing or creases, troublesome sores, boils, and inflammations, which give a great deal of pain, disturb sleep, and ultimately may produce fever. I allude especially, in this matter, to permitting an infant to go to sleep wet or filthy, and allowing it to continue in this loathsome condition for a whole night, which can not but render its sleep unrefreshing, at the same time suffering it to inhale this odious effluvia or unwholesome scent. I have frequently seen, in my practice, the cradle-bed so saturated with urine, and but partially dried, again and again, that it became intolerable to my olfactories, and the poor babe was obliged to breathe constantly this dreadful and offensive smell.

I trust these observations will be so impressed upon the mind of the mother, that they will not be neglected by those who have any regard for the cleanliness and comfort of the helpless infant. But there are many, nevertheless, who are remarkably particular about the appearance of the child when awake, but when asleep, unobserved, permit, from carelessness, the infant to remain in this injurious situation, until the complaints before mentioned take place. The infant, then, should be perfectly dry and clean upon going to sleep, and during its slumbers should be frequently examined. Upon discovering its situation to require changing, it should be done at once; it is far better to subject it to the slight disturbance of changing, than to allow it to remain for hours thus uncomfortably situated. If the child should cry from this disturbance, rub its back and limbs with the open hand; this is a very soothing and grateful remedy to the little infant, and is enjoyed with much satisfaction. In fact, protracted restlessness, or even crying, may frequently be quieted by this simple, though efficient means.

## THE CRY OF INFANTS.

Crying is about the only way an infant can explain that something is wrong, and if mothers would but give this subject attention, they would soon notice the different kind of cries and learn what each one means. For example, there is the sharp, piercing cry of colic, indicating pain; the fretful cry, indicating fatigue; the restless fitful cry, indicating the desire for change of position; the peculiar pathetic cry of Hydrocephalus; and so I might go on enumerating the various cries. I have, however, described enough, so that the watchful mother will understand and learn to interpret the peculiar cries of her own infant, which are always full of meaning.

# MANAGEMENT OF CHILDREN.

PARENTS must give good example and be reverent in deportment in the presence of their children. All those instances of charity which usually produce affection—sweetness of conversation, affability, frequent admonition—all significations of love and tenderness, care and watchfulness, must be expressed toward children, that they may look upon their parents as friends and protectors, their defense and sanctuary, their treasure and their guide.

It is usual to attempt to manage children either by corporeal punishment, or by rewards addressed to the senses, or by words alone. There is one other means of government, the power and importance of which are seldom regarded. I refer to the human voice. A blow may be inflicted on a child, accompanied by words so uttered as entirely to counteract the intended effect. Or the parent may use language, in the correction of a child, not objectionable in itself, yet spoken in a tone which more than defeats its influence. We are by no means aware of the power of the voice in swaying the feelings of the soul. The anecdote of a good lady, in regard to her minister's sermons, is to the point. She heard a discourse from him which pleased her exceedingly, and she expressed to a friend the hope that he would preach it again. "Perhaps," said her friend in reply, "he may print it." "Ah!" said she, "he could not print it in the holy tone with which he delivered it—that soft, persuasive voice!"

There is a tone in our intercourse with children which may be among the most efficient aids in their education. Let any one endeavor to recall the image of a fond mother, long since departed to her rest, her sweet smile and ever bright countenance are brought vividly to recollection; so, also, is her voice. Blessed is that parent who is endowed with a pleasing utterance. What is that which lulls the infant to repose? It is no array of mere words. There is no charm to the untaught one, in letters, syllables, and sentences. It is the sound that strikes its little ear that soothes and composes the little one to sleep. A few notes, however unskillfully arranged, if uttered in a soft tone, are found to possess magic influence. Think ye that this influence is confined to the cradle? No, it is diffused over every age, and ceases not while the child retains a remembrance of the parental roof.

While, then, I would advise the mother to the culture of a pleasant voice, I would warn her of the evils of addressing her children narshly. Out of a kind heart come naturally kind feelings. She who would train up her family in the sweet spirit of love, can succeed best,

and most enduringly of all, by cherishing such sentiments as shall seek their own unbidden expression in gentle, yet all-powerful tones. She who speaks to her son harshly, does but give to his conduct the sanction of her own example. She pours oil on the already raging flame. In the pressure of duty, we are all liable to utter ourselves hastily to our children. Perhaps a threat is expressed in a loud and irritating tone. Instead of allaying the passions of the child, it serves to increase them. Every fretful expression awakens in him the same spirit that produced it: so does a pleasant voice call up agreeable feelings. Whatever disposition, therefore, we would encourage in a child, the same we should manifest in the tone with which we address them. There is nothing more desirable in a daughter than intelligence joined to a gentle spirit. The mind is fashioned and furnished principally at school, but the character of the affections is derived chiefly from home influences.

How inestimable is the confidence of that mother in producing fine feelings in the bosoms of her children, who never permits herself to speak to them with a loud voice, or in harsh, unkind tones! Especially at night, when they are about to retire, their hearts should be melted and molded with voices of kindness, that they may go to their slumbers with thoughts of love, whispering words of peace to their souls. Piety, though last named, is of the greatest importance; for while there are duties to be performed toward each other, there are also others which we owe to our Creator, which should never be neglected or deferred—the performance of which will prepare them to act aright under every change, and enable them to bear up under all the ills which flesh is heir to, as well as cheer and comfort the heart while passing through the vicissitudes of life.

In the management of children, there must be an even, steady, firm, and temperate treatment, accompanied by a disposition of mind so much master of itself as never to yield to passion, but always to be governed by calm judgment. Persevering, yet gentle firmness, begun in infancy and practiced daily, establishes discipline, insures obedience, and almost entirely prevents the necessity of punishment of any kind; consequently it is by far the easiest and most agreeable course for the parents, as well as the most beneficial for the child. On the other hand, the gratification of the child's will, encouraged by frequent indulgence of its improper desires, associates the idea of happiness with such gratification, and of misery with disappointments. Self-will grows rapidly; a capricious humor is the necessary consequence, and the product is that pest of pests, a "spoiled child." But, again, in endeavoring to avoid improper indulgence, it should be equally the parent's care to steer clear of undue severity. For, if the

one strengthens self-will, the other imbitters present existence, strikes at the root of the most valuable social virtues, equally spoils the temper, enfeebles the mind, and has a tendency to repress the elasticity of spirits required in the ordinary transactions of riper years.

The respect due to the superior wisdom of the parent is a salutary feeling, serving a valuable purpose in the relative position of parent and child, and is as widely different from an abject restraint produced by fear of punishment, as from an impertinent self-confidence produced by uncontrolled indulgence. When the fear of punishment predominates, the child almost necessarily becomes artful—not so solicitous to avoid faults as to escape detection by artifices, which still more incurably deprave the heart. Indeed, timid children, if treated with severity, can scarcely resist the temptation to hide offenses, if possible. Though severity may extort confession, and promise of amendment, it is not in itself able to awaken virtuous thoughts or implant correct principles. A spirit of revenge is too often generated by such a course. Correction, to prove salutary and beneficial, must, as a general rule, be applied to the mind, not to the body. Proper motives must exist and be appealed to. Children must be taught that parents are rather afflicted than exasperated by their misconduct, and thus their better feelings and their reason are excited and brought into play—a far more likely mode of reclaiming them from evil, and effecting a permanent reformation, than the frequent recurrence to the rod, or harsh rebuke, which irritates the disposition, but rarely convinces the judgment.

We wish to express our strong conviction that, whipping children for failing to make due progress, is a very grave error, which has made many dunces and ruffians, but never one apt scholar, or great man. We do hope the directors of our common school education will take early and thorough ground against the infliction of physical pain in our schools, for any thing else than contumacious resistance of authority. Who can suppose that a boy, whipped for not learning his lesson, will be likely to learn it better thereafter, or that he will be likely to ascertain the true reason why he should learn at all? This is an important matter.

Parents, in making choice of schools, should select those presided over by teachers who know their duty better than to flog dull children for not learning. So far as the public are concerned, the school committee should know when any such outrage has been perpetrated, and send adrift any teacher who should thus violate, at once, the dictates of common sense and common humanity. It is unquestionably true that decided reformations are necessary, in many instances, in our country, in the management of schools; and

we are greatly gratified that the subject is meeting the serious consideration of the public.

A very distressing accident occurred at New Orleans, in one of the public schools of the Second Municipality, which resulted in the death of a sprightly and intelligent little boy about ten years old, named Jacob Polhemus. The lad was a scholar in the primary department of a school kept in a basement story, on Lafayette street. In the course of the morning, the lady in charge of that department found it necessary to chastise him. This did not produce the necessary obedience, and shortly after, she placed him in a small dark room, adjoining the school-room. A call from another department caused her to leave the school in the charge of another young lady, and she went away forgetful of her little pupil. The room in which he was placed was about ten by twenty-five feet, with a door at each end, and a small square hole in each door, made for the purpose of light and air. When the door was opened, the poor lad was discovered with his head thrust through one of these holes, and hanging by his neck, dead! It appears that he had placed a board against the door, and crawling up it, had endeavored to get through the hole, but the board slipped just when he had got his head through, and his body fell in such a manner, that he was unable to release himself, and suffocation ensued. The teacher, it is said, was almost frantic at the consequences of her indiscretion, in confining so small a lad in such a place. This event is pregnant with solemn warning and salutary admonition. We are not aware that the practice of punishing pupils by confining them in a dark room, or other gloomy receptacle, still exists to any extent, if at all. But we can recollect the time when almost every institution or seminary of learning had its "dungeon," as it was termed in the parlance of the urchins, who were taught to believe, that within its dark recesses were concealed a host of frightful monsters, ready to devour any who were so vicious, or so unfortunate, as to be doomed to confinement therein. The effect of this treatment upon their young minds, was pernicious in the extreme. It implanted within them a proneness to idle superstition, of which they were never after able entirely to divest themselves, notwithstanding the aid of enlightened reason. They were led to believe, that darkness, instead of being merely the opposite and absence of light, was the legitimate abode of evil spirits, and peopled with genii inimical and hurtful to man. Impressed with this belief, is it strange that little Jacob, the unfortunate victim of this cruel practice, and the consequent superstition, should have run the risk of breaking his neck, to escape the companionship of imaginary monsters? We can not but sympathize with the poor instructress, who was the innocent instrument of the

boy's destruction, by obeying a custom more honored in the breach than in the observance.

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## MENTAL INFLUENCE.

A HEALTHFUL state of the mind and feelings is as important as of the body, for the feelings constitute, through life, an ever-acting source of bodily health or disease; and upon their proper regulation, most of the happiness and value of life depend. The more closely we watch the play of the passions in their effects, the more we shall be convinced of their powerful influence for good and for evil. To demonstrate this fact, I refer you to the reports of our own and foreign asylums for proof that fright is the cause of many mental hallucinations.

It is fully established by practical fact, that each and all the passions and emotions of the mind, when once *too strongly* excited, are but the more easily excited again and again, and for a longer time, by the repetition of the same cause. By repeated and continued excitement, any one of them may be made to become the predominant habit of the mind. This important truth, a knowledge of which is so essential, especially to mothers, or those having the care of young children, seems to be little known, and little cared for, in the raising of their children.

In many instances it is a common impression, that when a child has been frightened, or otherwise alarmed by any noise, or by the sight of any object, repetition or exposure to the same influence will have a tendency to remove the pain from its mind; and for this reason children are often and designedly compelled to endure repeated frights. But this is not the case; nothing is more erroneous, either in theory or practice. When a child has been once greatly frightened at the sight of any object or the hearing of any sound, you may make every effort to remove its susceptibility to fright from the same cause, but you will find it will be worse and worse alarmed at each successive exposure under similar circumstances.

This will be the case, in most instances at least, even if the child has arrived at that age when his reason may be fully convinced of the perfectly harmless character of the object at which he has been frightened. His *reason* may be convinced of the utter folly of being frightened, but, nevertheless, at the next occurrence of the cause, his fright will return. The feeling is excited before reason and judgment are brought into operation.

The true and proper mode of overcoming the evil is to cause the child to be kept entirely free from the unhappy excitement. This may often be done by causing it to see or hear the object of the alarm at a distance, and while it is held calmly and persuasively in the arms of the parent or nurse, so that the emotion of fear shall not in the least be excited. But however, if it is possible to remove it entirely from the noise or alarming object, it will be much better to do so, until time and age shall have effaced from its memory all recollection of the influence of the unhappy event. How frequently do mothers and nurses frighten young children, by leaving them alone in the dark! The way to remove this fear, is to take particular care that the child should be gradually accustomed to being thus exposed, by the mother remaining with it from time to time until it gradually loses its fears. Children who, at an older age, are afraid to go into a dark room or other dark places at night, should never be required to do so; always refrain from asking it of them, and set before them a proper example. In a short time, their minds will be relieved of any fear or timidity. Children should never be shut up in dark cellars, closets or rooms as punishment for their faults, as the results of such a proceeding have, in many instances, been fatal. When such sad results occur, they are caused by fright or grief, or by the combined influence of both these emotions. The conclusion that a less evil will assuredly follow a less excitement of these and similar feelings, although the evil itself may not be immediately apparent, *is inevitable.* These alarms or excitements of the feelings will, more or less, have their effect upon the disposition of the child in after life, depending, more or less, upon its mental and physical character. This is true of other impressions.

Whenever, by the above injudicious practice, or by any other means, the sensations of fear, grief, or any other of the depressing passions have been deeply engraven upon the mind during infancy, they are seldom entirely eradicated in after life; but they often paralyze, to a greater or less extent, the powers of reason, and produce a deplorable state of mental imbecility, which not only detracts from the comfort and efficiency of the individual, but, in a peculiar manner, exposes the whole system to the inroads of many serious complaints.

Mothers, particularly, have it in their power in early life to form the disposition and character of their children, by instructing them properly, and by giving a right direction to the thoughts and feelings; by so doing, you determine which class of passions shall have the predominance in their minds during life. For there is no knowledge worth any thing, unless it is *founded upon truth.*

The state of mind, and the feelings which you cherish and indulge

in before your confinement, even, will have a powerful influence upon the mind and disposition of your child. If the milk of the mother is capable of more or less affecting the child, how much more so must the influence of a mother's example operate upon the mind, from the first days of life! Let me, then, urge upon you the importance of a constant endeavor to be yourself an example of every excellence of character and habit, which you wish to cherish in your child. If a proper example is constantly set before your children, and advantage taken of every proper occasion to impress upon their tender minds the best of sentiments and passions, the happiest results may reasonably be expected. Then, on the infant mind impress sincerity, truth, honesty, fidelity, benevolence, generosity and their kindred virtues, and the welfare of your child will be insured, not only during this life, but the life to come. Then in their presence use every effort in your power to maintain as habitually as possible a *calm*, cheerful, and happy state of mind.

Children, at a very early age, are close observers, and will read with a great degree of correctness upon the countenance of their parents any expression of passion or emotion. Circumstances which are often considered of the least importance, may, in the mind of a child two or three years old, sow the seeds of cruelty, and establish in its disposition excitements, which can never be eradicated or entirely overcome. For instance: a spirit of resentment, and a habit of retaliation, as often inculcated and encouraged in children, by placing a stick in the hands of the infant and teaching it to strike and whip the "naughty" chair, stool, table, or other object against which it may have been so unfortunate as to have hurt itself. In this way a strong desire for revenge has often been deeply and permanently implanted in the breast of children, which state of feeling has so increased, that in after years the most fatal consequences have resulted from it, and the heart of many a parent broken.

The excitability of the nervous system is always greater in early infancy, than in after life. We should remember that an angry look, a loud tone of voice, or a harsh countenance, or a rude shake or blow, may give such a shock to the system as to greatly increase the sensitiveness of the child, and, if often repeated, may impress upon its character such a degree of timidity, as to be to it a constant source of unhappiness and inefficiency during its whole life; or it may produce actual disease of the brain, which, if not soon fatal, may, in after years, result in imbecility and insanity.

In other instances, there can be no doubt, but that by injudicious treatment—that is, too harsh, severe, and unfeeling—very much is often done, during the first years of life, to sour the disposition, to

diminish self-respect and kind feeling, and to develop those passions which, in after years, lead to the commission of the worst of crimes.

Never frighten your children. We have no doubt that, by this injudicious treatment, many serious mental as well as physical injuries have been the consequence. In the Glasgow *Constitutional* is an account of the indiscreet conduct of a school-mistress, who, for some trifling offense, most foolishly put a child in a dark cellar for an hour. The child was terrified, and cried bitterly. Upon returning to her parents in the evening, she burst into tears, and begged that she might not be "put into the cellar." The parents thought this extremely odd, and assured her there was no danger of their being guilty of so great an act of cruelty; but it was difficult to pacify her, and when she was put to bed, she passed a restless night. On the following day she had a fever, during which she frequently exclaimed, "Do not put me in the cellar!" The fourth day she was taken to Sir Astley Cooper in a high state of fever, with delirium, frequently muttering, "Pray, do not put me in the cellar." When Sir Astley inquired the reason, the parents informed him of the punishment to which she had been subjected. He ordered what was likely to relieve her; but she died in a week after. Another case may be cited from the same authority. It is that of a child ten years of age, who wanted to write her exercises, and to scrape her slate pencil. She went into the school in the dark to fetch her knife, when one of her school-mates burst from behind the door to frighten her; she was much terrified, so that her head ached. On the following day she became deaf, and so much so as not to hear the loudest talking. Sir Astley Cooper saw her three months after this had happened, and she continued in the same deplorable state of deafness.

A boy, fifteen years of age, was admitted an inmate of the Dundee Lunatic Asylum, having become imbecile by fright. When twelve years of age, he was apprenticed to a light business, and some trifling article being one day missed, he, along with others, was locked up in a dark cellar. The children were all much alarmed, and thus he became insane.

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## THE FAULTS OF CHILDREN.

It may be well to drop a hint against the folly and impropriety of making the habits of your children the subject of conversation with other people. Nothing can be more unkind or injudicious. If you wish your children to reform, you must throw a shield around their

character. However foolish they may have acted, let them see that you are anxious to keep open the way for their return to propriety and respectability. Many a youth has been driven to reckless despair, by being upbraided before strangers for misconduct, which never ought to have been known beyond his own family. On the other hand, many a wanderer has been encouraged to return, by observing in those most injured by his follies, a readiness to reinstate him in their favor, and to shield his reputation from the reproach of others. It is not wise for a mother either to boast of the excellencies, or to publish the faults, of her children, but rather to ponder them in her heart, to mention them only at the throne of Grace, there to return thanks for what is right, to ask for guidance to correct what is wrong, and, in all things, to make plain before her face the way of her own present duty in reference to them.

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# TEETHING.

The process of Teething, to some children is productive of no evil consequences, but to others it brings great distress, and sometimes many troublesome diseases. The time of Teething continues, in general, from the fifth or sixth month to the sixteenth month. Some children will begin to cut teeth at the age of three months, and others not until they are eight or twelve months old. If the first teeth are cut easily, it is a pretty sure sign that there will not be much trouble with the others. But if the child begins to cut teeth in hot weather, about the time Bowel Complaints commence, it will often have a long and painful time. If the child commences cutting its teeth in the winter or fall months, and closes before summer, it most generally goes through with very little difficulty.

When Teething commences, there is a heat in the mouth, perceptible while the child is sucking; it begins to drivel from its mouth the saliva, or spit; the skin becomes hot; the gums look red and swelled, and are very tender to the touch. The child is constantly conveying everything to the mouth, and bites and grinds the gums together; but it will become perfectly quiet when gently rubbed by its mother or nurse. Nature has wisely ordered this flow of saliva for diminishing the inflammation and irritability of the gums, and for allaying thirst; it assists digestion, and lowers the action of the system, which is always excited by the process of Teething.

It is the usual custom to give an infant some hard substance to bite upon during Teething; this, however, is wrong; these hard substances tend to bruise and inflame the gums. The best material for this purpose is a piece of India-rubber, about an inch thick. The elasticity of it prevents injury to the gums.

In Teething there is always more or less disorder of the stomach and bowels. Most children are loose, although some will be costive or bound. A

slight degree of looseness is not, perhaps, productive of much evil, but in hot weather it is apt to run into a great looseness of the bowels ; if too great, it should be checked gradually. If the child is griped, or the stools discharged are of a greenish color, or of undigested food, or a watery matter, it should be considered as indicative of a disease requiring medical treatment, or that the food does not agree.

Teething, in some infants, produces Fever, Flushing of the Cheeks, Diarrhœa, difficulty or disorder in passing the Urine, Restlessness or Disturbed Sleep, Sore Eyes, Eruptions of the Skin, and sometimes Convulsions or Fits. These symptoms are by no means frequent, and in hundreds of children do not occur at all, for many infants cut their teeth so easily that their first appearance is scarcely discoverable from any symptomatic affection. Feeble, weakly, and excitable constitutions are most liable to the disorders mentioned.

The whole number of a child's first teeth are twenty, although sixteen are all that commonly appear in the first two years. There are four cutting teeth in each jaw, or four upper and four under cutting teeth. They are called the cutting teeth, or incisors, because they have a sharp edge to cut the food. These teeth have but one fang. There are four canine teeth, two upper and two under; these have only one prong or root. The two upper ones are called eye-teeth. The child cuts two grinders, or double teeth. Some children cut four double teeth. They are called double teeth because they have two sharp edges with a groove between them, and resemble two cutting teeth put together. These are called grinders, because they grind the food after it is cut by the fore-teeth, or torn to pieces by the eye-teeth. The double teeth of the under jaw have two prongs, and the double teeth of the upper jaw have three prongs, except those next the eye-teeth, which have but two. In children, two of the lower cutting teeth are commonly the first to make their appearance. Next to these, two upper teeth, which correspond to the lower ones, make their way through the gums. The four double teeth appear next. The canine and the eye-teeth are the last in the set to make their appearance.

The food, particularly in Teething, claims care equally with air, clothing, exercise, and cleanliness. Its regulations in infancy have already been sufficiently noticed, and if properly attended to, the management of the infant, while Teething, will be simple, and seldom require the interference of the medical attendant.

Remedies.—In ordinary cases of Teething, where there is not much disease of the stomach or bowels, no other remedy will be required, but an occasional dose of Calcined Magnesia, to correct sourness of the stomach, or a little Paregoric, to make the child sleep, and to relieve the itching and pain of the gums. A few teaspoonfuls of weak Lime-Water, or Prepared Chalk, will correct the sourness of the stomach. Should the bowels be disordered, with slight fever, give a mixture of Castor Oil and Paregoric every

day or two. A half or a tablespoonful of Castor Oil may be given to any child after the age of Teething commences, or after it is nine months old; this may appear a large dose, but it is not so. It will be found a fine remedy. To this quantity of Oil add two or three drops of Laudanum or twenty-five or thirty drops of Paregoric, reducing the dose of Laudanum or Paregoric in proportion to the age of the child. When there is sourness of the stomach, or discharges from the bowels, a teaspoonful of Calcined Magnesia should be used instead of the Castor Oil.

When the gums are much swelled and inflamed, it will be proper to cut the gums with a sharp gum lancet. This simple operation will afford great relief, and is not a painful one by any means. The transition from the crying and suffering of the poor infant to smiles and tranquillity will at once give evidence of the utility of this operation.

The treatment of the infant when Teething is very simple. The bowels should be kept open with Castor Oil, if they are not sufficiently relaxed at the time. Fresh air, exercise, and cold sponging of the body every day, and rubbing dry with flannel, are very useful. The breast should be given often, but not so long at a time as to overload the child's stomach. The mother must attend to her diet and health, and avoid all stimulating food or drink which will injure her milk, and thus, in this critical period, aggravate the difficulty of Teething. These cases are much increased by the habit of parents giving the infant stimulating food whenever it cries from the irritation attending this process, and from this cause Dentition may result in serious disease. From these remarks it must be seen how much the suffering from Teething may be mitigated by judicious management. If the mother is able to support her infant upon the breast alone, Teething will be found, in most children, comparatively an easy process, and unattended with danger. The process of Teething, although, under certain circumstances, a very constant incitement to disorder, yet, where the system of the infant is properly regulated, may be comparatively a harmless necessity. It is true that, during this period, the condition of the vessels about the head is more active than before, evincing excitement, either by transient flushes or by a more constant presence of heat and fullness; but even this circumstance does not materially aggravate the danger, if the child be kept cool, and the state of the stomach and bowels attended to. Their healthy condition, with care, diet, and good nursing, will enable Nature to ward off the evils attendant on this process, and drugs will be more than worthless.

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# WEANING.

The Weaning of infants must depend upon two considerations—the condition and health of the mother or nurse, and the age of the child. If the mother be in such condition of health that she cannot nurse her infant,

with benefit either to herself or it, Weaning, of course, must take place at once: but, in the generality of cases, the proper time is about the ninth or tenth month, when the first four teeth have appeared. Indeed, the development of the teeth may be taken as a sign that other food is required; if, therefore, their appearance is delayed, Suckling may, in most instances, be prolonged, for the reason that the late appearance of the teeth is frequently associated with delicacy of constitution, and then it is best for the child to be kept longer at the breast. Children that are weaned at six months, particularly if of a delicate constitution, will most assuredly be attacked by disorder of the stomach and bowels. Unless the mother becomes pregnant, or some other such cause arise, if she consult the welfare of her child, she will not give up nursing at this early period. The age, then, at which Weaning ought to take place, must ever depend upon particular circumstances, as before mentioned. As a general rule, however, both child and mother being in good health, Weaning ought never to take place earlier than the ninth month, and never later than the twelfth month.

In all cases, the teeth not appearing, shows at once an unfitness of the system for any other than the natural food from the breast of the mother. Weaning should never take place while the child is suffering under the irritation of Teething, as it will derange the bowels and often bring on Convulsions or Fits. The proper plan to wean a child is to effect it gradually from the sixth month, by feeding it twice or oftener during the day, so that when the proper time for Weaning arrives, it will be easily accomplished, without suffering to the mother or child. It is very important at this period to regulate the quantity and quality of its food, so as not to overload the stomach. In fine weather, give much exercise in the open air; this tends to invigorate the system and strengthen the digestive organs, and so enables the child to bear without injury the change from the mother's milk to other food. Be particular and bear in mind, that the two causes most frequently productive of disorder in children, are *over-feeding* and the use of *unsuitable food.* If these were properly attended to, children would have but little use for medicine.

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# DISEASES OF CHILDREN.—SHORT TREATISES.

## TREATMENT.

As the greater number of the Diseases of Children are mostly confined to the stomach and bowels, and as they usually arise either from the decomposition of the food, or the irritability of their nervous system, acted upon either mechanically, as in Teething, or by chemical causes, the great object is to render this part of their frame less susceptible of irritation, by

counteracting the immediate circumstances which give rise to and aggravate this morbid state; these circumstances being limited, in a great measure, to the milk, food, and drink of infancy, and avoiding exposure. It then lies within the power of a mother, or nurse, by strict attention, to form a means of prevention without the use of much medicine, or at least by the most simple remedies, for in the management of the diseases of infancy, the more simple the remedies the better; and by attending to leading causes, as respects their food and drink, habits of nursing, sleep, and exercise, it would tend to lessen the excess of mortality of the human species, which takes place at this early age. Such innumerable deaths arising from the deviation from the paths of Nature, should at least direct our attention to a proper management, if we desire to give health, vigor, and comeliness to our offspring.

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## RETENTION OF THE MECONIUM.

During the time of Gestation, there gradually accumulates in the bowels a dark green substance, nearly black, medically called the *Meconium*. Nature has indued the first milk of the mother, which is always of a laxative quality, with power to remove it, and for this reason the infant should be applied to the breast as early as possible, or as soon as it shows an inclination to suck. The consequences attendant on its being retained in the child's bowels for any length of time, is frequently Colic or Spasms; therefore, if the mother's milk is not sufficient to carry it off, which it seldom fails to do, it should be removed by some gentle and very simple means, such as a small teaspoonful of Sweet Oil, or of Castor Oil, or a little Manna, or a little Magnesia will have the effect; and this may be known by the evacuation assuming the natural appearance. It seldom, however, requires such remedies, unless the secretion of the milk in the mother's breasts is rather slow.

Though the dislodgment of the matter be very essential, it must be effected by gentle and simple means. The importance of caution at this period cannot be too much insisted on. We must remember by what a frail thread the commencement of life is tied, and how the least cause or neglect may terminate an existence just begun — a result much too frequently seen. This is not the intention of Providence, but rather one arising from our own mismanagement of the different means requisite to the attainment and establishment of health. This is more clearly perceived when children are born healthy, and show no marks of disease until they come into their attendants' hands. Early neglect in not attending to the infant's stools, to see if this accumulation of matter has been discharged, will often produce Colic, Bowel Complaints, etc.

## APHTHOU'S STOMATITIS—CANKER.

This is sometimes called Canker, or Baby's Sore Mouth; it is medically called *Aphthou's Stomatitis*, and is very common in early infancy, affecting the mouth and fauces, or the back part of the mouth, the lining membrane of which, in this disease, appears as if sprinkled over with bits of milk curdle, produced by an excess of acid, which causes also irritation of the mucous lining of the bowels. It generally makes its appearance in the course of the second or third week. The small sores make their first appearance on the under lip, like little blisters, which soon spread so as to cover the inside of the mouth with a kind of whitish crust. When the disease is severe, this crust is of a brownish color, the child is fretful and drules a good deal, and suckling is painful. It likewise has a slight fever: is drowsy; and the stomach and bowels are out of order, and the discharges a greenish color. This disease is not generally serious, and usually passes off in eight or ten days. Simple remedies are required to assist Nature to throw off this acid state of the stomach and bowels. Inflammation of the mouth is frequently produced by feeding the infant with bread and other things unfit for its stomach.

Remedies.— The first thing to be done, when an infant is afflicted with Stomatitis, is to correct the acid state of the stomach, by a few grains of Calcined Magnesia — it is preferable to give it in the fluid form, or mixed with water, or if the bowels are loose, by Prepared Chalk, following either of these antacids by a mild dose of Castor Oil, repeated every second day. After a moderate operation of the infant's bowels, and the offensive irritating matter is removed, should the bowels be loose and griped, you will find the Chalk Mixture one of the best remedies. The Bicarbonate of Soda, in a weak infusion of Anise-seed, with or without the addition of a drop of Paregoric, as the case may require, is a valuable remedy in correcting the discharges and quieting the child. When this complaint makes its first appearance, applications will greatly assist Nature. If the spots are scattered, each one may be touched with Lunar Caustic; if they are numerous or run together, the mouth may be wiped out with a soft, clean cloth dipped in a solution of Nitrate of Silver (five grains of the Nitrate to an ounce of Water). As Nitrate of Silver stains whatever it drops upon a black color after exposure to light, it may be preferable to use a Boric Acid solution or a solution of Borax in Glycerine as mouth-washes, which are nearly as good. The mouth should be washed out after each nursing. The regulation of the bowels by some mild aperient, or Castor Oil, and the wash I have mentioned, are the best remedies. When the case is mild, the child will be well in seven or eight days, and the mouth will heal if it be tenderly washed daily by the nurse. Children past infancy, or even adults, or grown persons, are sometimes affected with Aphthæ.

## GALLING OR CHAFING.

This is an inflammation which occurs generally in fat children, and is often produced by want of proper cleanliness, or by coarse napkins or cloths; it breaks out in the groin, between the legs, etc., and is often very painful and troublesome.

Remedies.— Wash the parts with Cold Water, and dust them with some good drying powder, as Boric Acid. When it is difficult to cure, make a wash of two grains of White Vitriol to three tablespoonfuls of Water; or you will find Lime Water, made weak, a good remedy. After washing the parts tenderly, apply a little Dry Powder, or Chalk, which heals the sores quickly, if you are careful in keeping the parts from being moistened or wet by the urine.

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## DERMATITIS.

This disease is an eruption of small pimples on the face, and sometimes on the body and limbs, in clusters or large patches, and is most generally produced by the improper practice of washing the infant in Brandy or Whiskey, and using violent friction with Soap, in cleansing the skin of that slimy covering which nurses often hastily attempt to remove, when the water and oil used in the first gentle washing fail perfectly to cleanse it.

Remedies.— During the time these eruptions are on the body, exposure to cold should be avoided, and the bowels kept open by some mild medicine, as Manna, Magnesia, or Syrup of Rhubarb. If these eruptions suddenly disappear, and the child be made sick from its being driven in by cold or exposure, put into a Warm Bath, and afterward give a gentle Emetic of Syrup of Ipecacuanha, or some Warm Tea, as Catnip or Balm, so as to produce a determination to the skin, and throw the eruption out again. Or, give half a teaspoonful of the Calcined Magnesia, in a little Milk, or a teaspoonful of Castor Oil, which is generally all the medicine that is required. If the skin is hot and dry, bathe with Warm Water, and give Catnip Tea, to make it perspire. The eruption generally disappears in a few days.

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## INFANTILE JAUNDICE.

This is medically called *Icterus Infantum.* There is a yellowness of the skin, attended with sleepiness, languor, and sometimes a disinclination to nurse. It seldom occurs after the child is a month old. Like the Red Gum (Dermatitis), it continues only for a few days, and then goes off; it generally arises from the retention of the Meconium, which I have before explained, and is generally purged, or carried off, by the milk of the mother. It requires but little medicine.

Remedies.—Give some simple remedy to open the child's bowels, if the mother's milk is not sufficient for this purpose, such as a little Rhubarb, Magnesia, or Castor Oil, or Manna. Medicines which purge or drain the bowels are those only which appear to be of much service. Or if there is Diarrhœa or looseness of the bowels, which is sometimes the case, a little Paregoric may be used. Drugs are of little or no value, and ordinarily the skin clears up in a short time without any treatment, beyond the ordinary care of the infant.

## VOMITING.

This generally arises from overloading the stomach, either by nursing too long at one time, or at too frequent intervals, or both. Irregularity in nursing may disorder the stomach so as to cause Vomiting. Vomiting in children may be caused by eating improper articles of diet, or even things which were not meant for food at all. The onset of some of the acute fevers and other diseases is occasionally accompanied by vomiting.

Treatment.—The amount and frequency of nursing should be carefully regulated. The character of the food may require altering. If improper food has been taken, the vomiting is Nature's own remedy. If there is some fever, a cool Sponge Bath may be given and the child allowed to swallow small bits of ice. Bicarbonate of Soda and Rhubarb may be given, or if very severe, Cerium Oxalate, Bismuth, and Cocaine may be required. A Mustard Plaster over the stomach sometimes gives relief. It may be necessary to wash the stomach.

## MILK SCAB—EXFOLIATIVE DERMATITIS.

These scabs or sores often appear upon the forehead and upper part of the face, in children otherwise remarkably healthy, which, however, seldom remain long, and pass off without leaving any scar or disfiguration, however long they continue. It is frequently produced from the milk of the mother being too rich, or sometimes it is from some irregularity of diet while nursing. Very little treatment is necessary.

Remedies.—Washing or cleansing the parts with Castile Soap and Tepid Water, and giving a few grains of Sulphur or other aperient, occasionally. It generally disappears entirely on the child's cutting a few teeth, or upon its being weaned. When it continues after this period, the food should be light, with a little salt in it, and the milk ever largely diluted with water; and gentle laxatives, such as Manna or Castor Oil, should be given occasionally until it passes off.

## SCALD HEAD—INFANTILE ECZEMA.

This complaint is very troublesome, and generally occurs in scrofulous children, or those whose health is feeble and frail. In its early stage it is purely local, having its seat in the glands of the skin, at the roots of the hair upon the scalp, and should be attended to early, or it will spread extensively over the whole head of the child, and may ultimately injure its constitution and general health.

Remedies.—Apply a little Sulphur or Brimstone, in the form of ointment, at the same time keeping the bowels open by some laxative medicine, such as Magnesia or Castor Oil. If the Sulphur Ointment does not heal it, then use a very diluted ointment of White Precipitate, and cautiously apply this every night. Cases of this kind, however, when they do not yield to the above treatment, require to be placed under medical treatment.

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## CHOLERA INFANTUM.

This disease is known by severe vomiting and purging, which, in a few days, and often in a few hours, by neglect, may prove fatal. It is most usual in the months of July and August. Heat about the bowels and stomach, and in the hands and feet, are mostly the first symptoms of this complaint, soon followed by vomiting or purging, or both together, with a pain in the pit of the stomach, griping of the bowels, shortness of breathing, a sudden loss of heat, great prostration of the strength, a quick, small, and feeble pulse, great thirst, followed by a cold perspiration. In dangerous cases, the natural heat never returns; but the child becomes weaker and colder after every discharge from its bowels until death takes place. The discharges from the stomach and bowels consist of bile; and the other fluid from the digestive organs is either of a yellow or green color. The child is constantly retching or trying to vomit, with a severe pain at the pit of the stomach. These symptoms require at once strict attention.

Remedies.—Warm flannels should be applied to the surface of the body, and a Mustard Poultice, or spirits of any kind made hot and applied over the stomach, or hot applications made frequently; also give a few teaspoonfuls of Peppermint, Ginger, or Cinnamon. If these teas, with the warm applications, do not allay the vomiting, a dose of Laudanum or Paregoric should follow very soon. The dose of Laudanum for a child one month old, may be one drop; for a child three months old, 2 drops; for one six months old, 3 drops; for one a year old, 5 drops; for one two or three years old, from 5 to 8 drops. This dose may, if it becomes necessary, be repeated in two or three hours, until the stomach and bowels are tranquilized. Children are readily poisoned by Laudanum and other prepara-

tions of Opium, so that it should be given to them with the greatest care and watchfulness.

Frequently the stomach is so irritable, it refuses to retain any medicine; in such cases give an injection of a tablespoonful of Flax-seed Tea, or some other mucilage, such as Slippery Elm, into which drop twice as much Laudanum as named before for each dose. If the discharges are principally downward, that is from the bowels, it will be best to give the Laudanum by the mouth; but if they are chiefly upward, it will be better to give it by injection.

As soon as the stomach is quieted, a dose of Calcined Magnesia, or a dose of Castor Oil, in a little Peppermint Tea, should be given. If there is great coldness of the skin and loss of strength, give a little weak Wine or Spirit of any kind to restore the strength. As this disease is apt to return, after a few days, it will be well, should there be any such appearance, to give, for two or three days, occasionally, a little Paregoric. Should this disease settle into a Chronic Bowel Complaint, the remedies proper to be used will be found under the head of "Summer Complaint." In my practice, I have used the Warm Bath with great benefit, and on removing the child, wrapped it in a blanket, so as to produce a free perspiration or sweat. The only drink should be Water cooled with Ice, and all food be withheld, as much as possible, for a few days. This course, being followed for two or three days, will generally produce a mitigation of all the symptoms. Much may be done, in the way of prevention of this disease, by regulating the diet and clothing of children during the summer months.

ANOTHER MODE OF TREATMENT.— This disease affects children during the summer months, and is often called Summer Complaint, or Cholera Infantum. There is generally not so much sickness at the stomach, but the discharges from the bowels are frequent, and usually of a watery, greenish, or white frothy character. Sometimes, if neglected, it will run into Dysentery or Bloody Flux.

The treatment should be about the same as directed for Cholera Morbus, varying it according to age and circumstances. The bowels should be irrigated once or twice a day with Cold Salt Water; a fountain syringe may be used for this purpose. It should not be hung too high, however, and the soft tube, not the hard rubber nozzle, introduced into the rectum. Of medicines, Calomel in divided doses should first be given, with the object of cleaning out the bowels of any irritating materials which may be present; then give Paregoric and Bismuth. An eighth of a grain of Calomel may be given every fifteen minutes until a grain and a half or two grains have been given, then a small dose of Salts should follow, to drive the Calomel out; now the Paregoric and Bismuth should follow. The following is a good prescription if the child be very restless: Bromide of Potassium, 20 grains, Bismuth Subnitrate, 2 drachms, Essence of Pepsin, 1 ounce, Anise Water, sufficient to make two ounces all together; of this,

give a drachm every two or three hours, skaking before using. Attend well to the skin; bathe the child twice a day in Warm Saleratus Water, or Weak Lye, and rub the surface well, so as to promote, if possible, a healthy action in the vessels of the skin. Let the diet be light — as Rice, Boiled Milk, with a little Flour stirred in it, and the like.

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## SUMMER COMPLAINT.

CHILDREN, from one to three or four years of age, are very liable during the summer months, to looseness in the bowels or protracted Diarrhœa, known very generally as the Summer Complaint. The discharges from the bowels are often thin and watery; sometimes of undigested food; at other times greenish, or white and frothy, like soapsuds. The complaint, if neglected, is liable to prove fatal, and hundreds of children are carried off by it every summer.

In the management of this disease, two things are very important: Attend well to the skin, and be careful about the diet. The patient should be bathed twice a day — that is, washed well all over with warm Alkaline or Saleratus Water; rub dry, so as to keep the skin clean and the pores open, and, if possible, in a healthy condition.

The food should be of easy digestion, mild and unexciting, yet nutritious — such as Boiled Rice, thickened Milk (or Flour boiled in good Sweet Milk); good, well-baked Bread; no Meat, except a little Mutton well cooked (but not fried in grease), and perhaps dried and salty Chipped Beef; no green Vegetables, Fruits, or Berries. The juice of Blackberries may be given, provided it is free from seeds and is made from good ripe berries.

Simple medicines should generally be relied on. It will always be well to commence the treatment with some good Cathartic medicine, such as small doses of Calomel; after giving this, until it has acted on the bowels, and changed the passages to something more of a natural color, it will be proper to give astringents, such as Subnitrate of Bismuth, or small doses of Salol.

The following preparations are both food and medicine in this complaint:

PARCHED OATS.— Half a pint of clean Oats, browned the same as Coffee, but not to be ground ; then boil in a quart of water to one pint, and when cool, pour off ; take in doses of half a teacupful, more or less. It may be sweetened, and, if preferred, a little boiled Milk may be added. The whole pint should be taken in the course of the day.

FLOUR AND WATER.— Take a tumbler of Cold Water and stir into it Wheat Flour until it becomes about the consistency of thick cream, and then drink. A grown person could take a tumblerful at once, and repeat two or three times in the day ; but for a child, a tumblerful, or even less

for some, would be enough, to be taken at different times during the day. It is drink, food, and medicine — said to be infallible — and may be taken freely every time the patient is thirsty. It is an admirable remedy in Dysentery.

Parched Corn.— Parch some Corn, then grind fine in a coffee-mill, boil in Sweet Milk, and feed to the patient; or you may take Corn-meal, brown it in an iron vessel, and boil in Milk. It is good, healthy food, and an excellent remedy in all cases of Diarrhœa, Dysentery, and Bowel Complaints, whether of children or adults. You may, in these complaints, let children eat as much Parched Corn as they please.

## COLIC.

This is a very common complaint among children. It is generally produced by too much food, or some improper diet of the mother, and sometimes from exposure to cold or change of clothing, and often from bad quality of the milk. It makes its attacks suddenly, by violent screaming, kicking, drawing up of the legs, and frequently a stoppage of the urine or water. This complaint attacks those children who are subject to it so suddenly, and often with such violence, that we should always be careful to attend to it at once, or it may produce Convulsions. Nursing children are very subject to colic, which is often so severe as to produce a cold sweat.

Remedies.— Paregoric seldom fails to procure relief. Children can take from ten drops to a teaspoonful. Half a teaspoonful is a medium dose for a child a year old. In children, where the distress is great, an injection, made of a small quanity of Common Salt dissolved in Warm Water, will often procure the most instant relief. Half a teaspoonful of Castor Oil and half a teaspoonful of Paregoric, mixed, will effect a cure. In some cases, a little Peppermint, or Pennyroyal, or Ginger Tea, given warm, will remove the Colic. Dry, hot flannel cloths should be put to the stomach, and a bottle of hot water or a hot brick to the feet, or warm bathing and rubbing, or friction, over the stomach and belly, with some liniment, will give great relief. When the child is costive, or bound in its bowels, a gentle purgative of Manna or Castor Oil will be required to relieve the flatulence and constipation, or costiveness. In giving Paregoric, remember that it contains Opium, which is a dangerous drug, to give in an over-dose, to children, so that great caution must be observed in using it.

## STOPPAGE OF THE NOSE.

Some children are liable to a slight catarrhal affection or cold, which nearly or quite prevents their breathing through the nose. It is commonly

called Snuffles. The consequence is, that the moment they begin to suck they strangle, and soon throw their heads back, and appear to be unable to get their breath. This a common complaint, but requires only the most simple remedies to relieve it in a few minutes. In some cases "Snuffles" is a symptom of a disease of the nose, resulting from hereditary Syphilis.

Remedies.—Cleanse the parts or nostrils with Tepid or Warm Water, and then use the Camphorated Olive Oil, rubbing it over the whole surface of the nose, at the same time be careful that it does not go into the eyes of the infant; rubbing may be repeated whenever necessary. It is more frequently required in the night than during the day-time. Or you may grease the nostrils with Sweet Oil or Vaseline, and keep the head warm and the bowels gently open with a little Castor Oil. Bathe the feet and legs of the child in Warm Water. I have, however, generally found the rubbing of the Camphorated Oil, as before mentioned, prove sufficient.

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## CROUP.

Croup is an inflammation of the windpipe. This is a dangerous and distressing disease, to which children are very subject, and requires early attention. Croup is most prevalent in cold, moist weather. In some few cases its attack is sudden; but generally it is preceded for a day or two by the symptoms of a common Cold, accompanied with Hoarseness and Cough. In the approach of Croup, the cough is rough, and has a peculiar shrill sound, like the crowing of a cock, or the barking of a dog. I have generally observed that this disease occurs mostly at night. The child, without awaking from its sleep, gives a very unusual cough, and in a short time it is repeated again, and again, followed by a great difficulty of breathing. As the disease progresses, the fits of coughing become more and more distressing; the child makes a great effort to breathe; the face is flushed, and the head is usually thrown back to escape suffocation. Upon the early application of suitable remedies, everything depends. The distinction between a serious attack of Croup and Diphtheria is rather scientific than useful, so that all cases of Croup should be considered as Diphtheria until proven not to be.

Remedies.—The best remedy which can be given to a child attacked with Croup is an Emetic. A tablespoonful of Mustard, in Hot Water, is usually to be obtained at most homes, and will answer the purpose of an Emetic very well. My practice, on first discovering the disease, is to give a quick Tepid or Warm Bath, bathing well the head, throat, and chest; then give the Emetic last mentioned, and apply a wet bandage, well wrung out, about the throat, the seat of the disease, and warm applications to the feet, so as to produce perspiration as quickly as possible—the body being wrapped in a warm blanket immediately after bathing, so as to prevent the

slightest exposure to taking cold. The warm applications to the throat should also be renewed from time to time, as may seem necessary; and the bowels kept freely open, perhaps, with Castor Oil. A late *Medical Journal* says: "Cold Applications of Ice Water to the throat will speedily relieve this disease." I have, however, preferred warm applications; the cold may be tried, however.

The treatment outlined under the title Diphtheria should be followed in a case of Croup. The room should be cool, and there should be plenty of fresh moist air; it may be well to make a tent over the bed and turn the spout of a boiling teakettle underneath. The diet is necessarily light, but should be nutritious. If the child cannot breathe, it may become necessary to insert a tube in the larnyx; this is termed Intubation; or it may be necessary to make an opening into the wind-pipe so as to admit the air. Antitoxin may have to be administered.

It may be necessary, in closing my remarks, to mention its prevention. Croup seldom occurs during the first year of infantile life—most frequently in the second year and upward. When it has once attacked a child, it is very liable to recur at any period before the thirteenth year of age. It is, then, very proper that the mother should be made acquainted with the means of prevention. They consist in being careful in protecting the child from cold or damp weather, particularly in the spring, or after heavy rains, or in cold, damp changes of the atmosphere; for Croup is then most prevalent. Croup is often produced by the child sitting or playing in a room newly washed out, when there is a predisposition to the disease. Then the child, every morning upon rising from bed, should be sponged all over with Cold Water, in which is put some Salt, and rub well with a coarse towel. The clothing should be warm; the neck and arms always well covered; flannel worn next to the skin, throughout the year, and the bowels kept regular.

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## CONVULSIONS, OR FITS.

This is a frequent disease of infancy, and particularly during the period of Dentition or Teething. These often occur suddenly and without any premonitory symptoms, but are commonly preceded by spasmodic twitchings of the hands and feet, during sleep. Overloading the stomach is one of the great causes, and most of the Convulsions of children are dependent upon the presence of some irritation, either in the stomach or bowels; the prepuce or foreskin may be tight, possibly with a collection of thick creamy material called smegma, underneath; this is a sufficient and common cause of Convulsions. Some of the acute Febrile diseases commence with a Convulsion, or are produced frequently by inflammation of the gums during Dentition; relief may be immediately obtained by the sudden escape of the tooth from its enveloping membrane, either by lancing the gum or otherwise. When

infantile Convulsions are obstinate and long-continued in defiance of treatment, the brain may be suspected as involved, either primarily or secondarily; and one of the sad results in such cases is, that a repetition of the attack often follows, and Epilepsy may be the consequence, extending through youth and even to adult age. Indeed, Epilepsy and Insanity, during life, have often been the effect of infantile Convulsions. The attention of mothers should be particularly directed to the approaching symptoms, as more serious ones may be prevented by observing particularly the derangement of the system, or changes, which excite this nervous irritability.

Remedies.—An Emetic promptly given, either of Syrup of Ipecacuanha or Antimonial Wine, the Warm Bath, Mustard Plasters to the arms and legs, with an opening injection to the bowels, will usually be found to afford early and effectual relief. The bowels should be kept open by small doses of Magnesia or Rhubarb. Relief will be obtained by immersing or placing the feet of the infant in Water as warm as can be borne, at the same time applying, over the head and temples, a piece of flannel wet with Cold Water, or sprinkling Cold Water in the child's face. This will often cut short the Fit. The gums should be looked to, and if they appear swollen or much inflamed and painful, lanced. I have known the most severe Convulsions to cease immediately after this operation. The prepuce must be examined, and if the previously described condition discovered, must be cleansed, and later the operation of circumcision should be performed.

The cause of the Convulsion should be ascertained as soon as possible and removed; if there is a rise of temperature and no cause to be found, an acute fever should be anticipated and the Cold instead of the Hot Bath should be used.

The parental management of the infant, then, and by which much of the difficulty or danger of Convulsions or Fits may be removed, consists in a proper attention to cold sponging the infant's body, and friction, or rubbing it well, air, exercise, proper food, and attention to the bowels; for by duly regulating these, the system of the child will be less disposed to diseased action, and the recuperative powers of Nature will overcome any predisposition to this disease.

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## INFANTILE REMITTENT FEVER.

This is a low grade of irritative fever to which young children are frequently subject, occurring most usually during the latter months of Nursing, or before Weaning, and generally at the time of Teething. There is always more or less irritation and excitement induced by the process of "cutting teeth," accompanied often with flushes of heat, redness of one or both cheeks at times, disorder of the bowels, fretfulness, loss of appetite, etc.

When this state of things continues, and settles into a regular well-developed fever, with periods of exacerbation and remission, more or less marked, it is called Infantile Remittent Fever. It is probably what may be called purely an irritative fever — arising from the irritation caused by the process of Teething, or from Worms, or some other irritating cause in the system, as unwholesomeness of the food.

When the disease is fully developed, it will be marked with restlessness at night; a hot, dry skin, which continues till near morning, when the skin becomes moist, especially on the face and chest. During the forenoon the little patient is apt to be free of fever, but looks pale, and shows by its expression that it is evidently sick. It takes but little notice of things or persons about the house; seems sad, serious, showing no disposition to play, and has generally a very poor appetite, showing less disposition to nurse or take food than when the fever is on. The pulse is quick and wiry, or hard. In the afternoon there will likely appear a red spot on one of the cheeks, and and after a little, on the other, as the first symptoms of the returning fever. The skin, by and by, becomes hot and dry again; the pulse quicker and stronger; the child is apt to be sick at the stomach and vomit occasionally, especially if it nurses. The urine is scanty, high colored, and is passed at frequent or short intervals—induced by its scalding and irritating character. The child is now apt to be fretful and restless from this on till the fever remits again in the morning.

After the disease has continued for some days, the lungs are apt to become affected, attended with a cough, perhaps a rattling in the throat, caused by the secretion of mucus in the air passages. The bowels are always more or less out of order in this disease. The discharges are of an unhealthy or unnatural color — sometimes of a dirty brown, but more generally of a greenish color, or mixed, like scrambled eggs, or of a light color and curdled. They are very offensive. The disease is apt to become worse, as it continues, until the child lies a great portion of the time, when the fever is off, in a stupid, comatose state, showing that the brain has become affected. And this is the great danger in this complaint — the affection of the brain, or rather the membranes of the brain. Thousands of children die annually from Inflammation of the Brain, brought on just in this way. It is not always the case that the brain becomes affected; yet in a majority of cases it is probably true that the brain is more or less affected, if the disease continues to any considerable length of time; while in many cases, for the want of proper judgment and precautionary measures, the brain or its membrane is allowed to become so seriously implicated as to pass beyond remedy.

Treatment.—The disease may terminate favorably, of itself, without the use of medicines. In many cases it unquestionably does. In such cases it will generally run about twelve to fourteen days, where the child is of a robust and naturally healthy constitution, the mother at the time

in a good state of health, and the child otherwise is properly taken care of — well clothed, well nursed, frequently bathed, kept clean, and from all undue exposure. If the disease is likely to terminate favorably, it will begin to decline, the paroxysms of fever growing lighter and of shorter duration, about the fourth to the seventh day, and gradually disappear at the end of about two weeks. But it is always best to make use of some safe and judicious remedies. In the first place, examine the gums closely, and if they are swollen at any point, and there is a clear indication that one or more teeth are about to appear, the gum may be cut freely, down to the teeth, with a gum lance, or sharp instrument, as the point of a small penknife. A physician, or some one who understands the matter, should be engaged to do it.

If the bowels are in a bad condition — as will generally be the case — some suitable medicine should be given. The diet, or if the infant is nursing, the condition of the mother's milk should be carefully attended to, and this perhaps is the most important part of the cure. Calomel may be used to advantage, followed by Bismuth and Paregoric.

Attention must also be paid to the skin. Very often a Warm Bath night and morning, rubbing the body well afterward; a moderate use of the Neutralizing Cordial, or Syrup of Rhubarb and Magnesia, and the Sweet Spirits of Niter, will be all that is necessary.

## WORMS.

There are three kinds which infest the intestinal canal, namely: The Round-worm, the Pin or Thread-worm, and Tape-worm. The Round-worm, varying in length, is from twelve to fifteen inches; the Tape-worm is from three to twenty feet in length; the Pin-worm is never more than an inch long. The Round-worm is of a whitish color, and chiefly infests the smaller intestines; they sometimes ascend to the stomach. In general there exists but two, though occasionally as many as thirty or forty have been found. They are seldom met with in persons above fifteen years of age.

The Tape-worm is flat, half an inch or an inch wide, and is full of joints. I saw one of these worms which measured a hundred feet! This worm infests the upper part of the bowels, and feeds on the chyle. It produces a voracious appetite and great emaciation of the flesh; and this enormous desire for food, which is never satisfied, is, no doubt, occasioned by the immediate consumption of the chyle, or the worm feeds upon the extracted nourishment of the food.

The last to be described are the Pin or Thread-worms; they are never more than an inch or half inch in length, move very quietly, and infest the lower end of the bowels, are of a yellowish white color, and frequently creep out of the fundament. These Worms produce an intolerable itching, and in children are often the cause of Convulsions or Fits, and frequently

produce fever, irritation, and many other serious disorders of childhood. Most Worms gain admission to the alimentary tract in uncooked meat or through filth and carelessness. The majority of intestinal Worms reach their final development in the intestinal canal of man, eggs are laid and passed in their fæces or stools, to be taken up by the lower animals, especially hogs, in which they partially develop to an embryonic state; pork containing the embryo of a Worm, called *Trichina Spiralis*, is said to be measly, and if eaten without being thoroughly cooked the embryos will develop into mature Worms, invade the muscles, and ultimately produce death as a rule.

One of the symptoms of Worms is a gnawing, uneasy feeling about the stomach, which is removed or diminished by eating. The appetite is deranged and variable, and often more than ordinarily voracious; the belly is hard and swelled, with frequent pains. There is picking of the nose, hiccough, disturbed or starting in the sleep, grinding of the teeth, and bowels costive. The child has a pale countenance, then again flushed; the eyes are sunken, and sometimes of a dark purple color underneath; the flesh becomes wasted, and the child is liable to convulsions. There is often great irritation of the nervous system. The grinding of the teeth, and talking during its sleep, or waking up screaming; a foulness or bad breath, and frequent pain in the bowels, and sickness of the stomach, are strong symptoms of Worms. If a child has any or most of the above symptoms the stool should be carefully examined each day to determine the presence of Worms, as finding the Worms is the only positive proof of their presence, the above symptoms indicating only the presence of an irritant which may be Worms or something else, hence until one is positive that Worms are present, do not stuff a child with Worm medicines, as they will do harm. If a Tape-worm is present, often sections may be found in the fæces which possess motion. In removing Tape-worms, it is necessary to secure the head, which is very small compared with the other parts; if this is not done, no matter how much of the Worm besides is expelled, nothing is accomplished, for more will quickly grow from the head.

The Round-worm and the Pin-worm mostly infest children between the time of weaning and that of puberty. The Tape-worm is more common to grown persons, but I have known them in my practice to affect children likewise.

We once had a patient in Louisville, Kentucky, a girl, fifteen years old, whose case was apparently hopeless, to whom I administered Turpentine and Castor Oil. She felt the motion of the Worm in her stomach immediately, but it was not discharged from the bowels until she had taken several doses, followed by Columbo Root Tea, when she passed it; it measured twenty-three feet. The dose given to her was half a tablespoonful of Spirits of Turpentine, mixed with an equal quantity of Oil, morning and evening. On the fourth dose, the medicine produced the desired effect and she was entirely relieved.

REMEDIES.—To get rid of Worms, two important remedies are necessary—poisons to kill the Worms, and purgatives to remove them when killed. Worm medicines are best administered upon an empty stomach, so that a patient should live on a little Milk and Bread for one day, the morning following taking the medicine, and abstaining from eating, if possible, until dinner-time.

For Round-worms, to a child two years old, ½ drachm to 1 drachm; to an adult, ½ ounce of the fluid extract of Spigelia and Senna may be given and repeated every four hours, until purging is produced.

For the Tape-worm, and also the Round-worm, the most powerful medicine is the Spirits of Turpentine; half a tablespoonful, mixed with Milk, may be given to a child between two and seven years of age, for a number of days in succession. Adults, or grown persons, may take one tablespoonful at a time, mixed with an equal portion of Castor Oil. A loaf of white sugar may be saturated in it, and taken at bed-time.

The Pin-worm, which infests the rectum or lower bowels, medically called *Ascarides*, which so greatly annoy young children and girls, may be destroyed by giving a dose or two of Aloes. An injection of Aloes, dissolved in warm water, will dislodge them. Aloes is a sure and certain remedy for this kind of worm; or an injection of Common Salt and Water will frequently have the effect to remove them.

Worms, as well as many other disorders of children, are frequently owing to the general deficiency of SALT in the food, and especially the very young—those under one or two years, who are compelled to be fed. In their food you will always find abundance of Sugar, and very frequently no Salt, or a mere trifle. I have made it a common rule, when a child has to be fed, to tell the mother to *sweeten* the food with Salt, and add only a little Sugar to give it a taste, and always, I can say, with the happiest results. Every day unfolds some new remedy, and sometimes the most simple prove more efficient than active ones.

The fresh seeds of the common Pumpkin, in large doses of two ounces, pulverized, and taken every four or five hours, for four days in succession, have removed the Tape-worm. The root of the male Fern, found so abundant in the country, in our pastures, has been employed with the same success. The diet of all children or persons affected with Worms, should be carefully regulated. Digestion should be promoted by the use of Stimulants and Bitters, and the bowels kept regular. The general system is to be strengtened by daily exercise in the open air; by the Cold Bath when the season permits, and by such Tonic medicines as will prevent the accumulation of these pests of the human family; use Quinine or infusions of Gentian, etc. By these means the system will be greatly strengthened, and the bowels regulated to their natural action, and the general health restored.

# HINTS TO PARENTS.

THE real object of education is to give children resources that will endure as long as life; that time will ameliorate, not destroy; occupation that will render sickness tolerable, solitude pleasant, age venerable, life more dignified and useful, and death less terrible. The early instruction imbibed from a parent's life, has the strongest influence in forming the future character. Before the mind is mature enough to think for itself, we look to those whom Nature has constituted our guardians, to correct and sanction our opinions. In this way the parental authority gains a hold upon the mind of children that never can be annihilated. And happy, indeed, would it be if the result were always the formation of a noble and manly character. The contemplation of the period of childhood—the earliest spring-time of human life—is replete with the most tender interest. We should remember that the system of the child is capable of constant modification; hence it is our duty, as well as in our power, in a great degree, to impart, both mentally and physically, that standard of health so essential to the happiness of the child. Of all the acts of folly and cruelty of which parental blindness can be guilty, there is none more to be lamented than that which, from the pride of display, or even the more generous desire for improvement, induces any one to press on infancy the task fitted for youth, or demand from youth the wisdom of manhood. It is rending and scattering the blossoms in order to reach the fruit, which, if obtained, is immature, unnatural, and therefore unpleasant; it is the conduct of an Egyptian task-master demanding a work without the material which forms it—an arraigning of the wisdom and providence of God, who, in rendering man the most perfect of His creatures, has yet evidently made his progress the slowest toward the attainment of his powers.

That indolence must be conquered and industry excited in children, there is no denying. Can the recitation of the most difficult subjects, or intense study at ten years old, the power of playing difficult music at sight by fingers not half grown, or any of the wonders we see and hear so much of, repay a blooming girl for the roses that are vanished, the breath that is shortened, the appetite that is fled, the spine that is curvating, the sense of joyful existence which once danced in her eyes, vibrated through her nerves, and was heard in every thrilling accent? While the energy of the vital system is uninjured, and its manifestations in the various organs are in due harmony throughout with the state of the structures with which it is associated, all the operations of the body are duly and steadily performed. This is the condition which may be termed *health*. But as soon as the mental powers are overtasked, a change takes place throughout the whole system, and *disease* supervenes.

At any time of life, excessive and continued mental exertion is hurtful; but in infancy and early youth, when the structure of the brain is still immature and delicate, permanent injury is more easily produced by injudicious treatment than at any subsequent period. In this respect the analogy is complete between the brain and the other parts of the body, as is exemplified in the injurious effects of premature exercise of the bones and muscles. Tuberculous and rickety children are the most usual sufferers in this way. They are generally remarkable for large heads, great precocity of understanding, and small, delicate bodies. But, in such instances, the great size of the brain, and the acuteness of the mind, are the results of morbid growth, and even with the best management, the child passes the first years of its life constantly on the brink of active disease. Instead, however, of trying to repress its mental activity, as they should, the fond parents, misled by the promise of genius, too often excite it still further by unceasing cultivation and the never failing stimulus of praise; and finding its progress, for a time, equal to their warmest wishes, they look forward with ecstasy to the day when its talent will break forth and shed a luster on their name. But in exact proportion as the picture becomes brighter to their fancy, the probability of its becoming realized becomes less—for the brain, worn out by premature exertion, either becomes diseased or loses its tone, leaving the mental powers feeble and depressed for the remainder of life. The expected prodigy is thus, in the end, easily outstripped in the social race by many whose dull outset promised him an easy victory.

To him who takes for his guide the necessities of the constitution, it will be obvious that the modes of treatment commonly resorted to hould, in such cases, be reversed; and that, instead of straining to the utmost the already irritable powers of the precocious child, leaving his dull competitors to ripen at leisure, a systematic attempt ought to be made, from early infancy, to rouse to action the languid faculties of the latter, while no pains should be spared to moderate and give tone to the activity of the former. But instead of this, the prematurely intelligent child is generally sent to school, and tasked with lessons at an unusually early age; while the healthy, but more backward boy, who requires to be stimulated, is kept at home in idleness merely on account of his backwardness. A double error is here committed, and the consequences to the active-minded boy are not unfrequently the permanent loss both of health and of his envied superiority of intellect.

There can be little doubt but that ignorance, on the part of parents and teachers, is the principal cause that leads to the too early and excessive cultivation of the minds of children, and especially of such

as are precocious and delicate. Hence the necessity of imparting instruction on this subject to both parents and teachers, and to all persons who are in any way charged with the care and education of the young. For I have seen many children who were supposed to possess almost miraculous mental powers, experiencing these effects and sinking under them. Some of them died early, when but six or eight years of age, but manifested to the last a maturity of understanding, which only increased the agony of separation. Their minds, like some of the fairest flowers, were no sooner blown than blasted. Others have grown up to manhood, but with feeble bodies and disordered nervous systems, which subjected them to Hypochondriasis, Dyspepsia, and all the protean forms of nervous disease. Others of the class of early prodigies exhibit in manhood but small mental powers, and are the mere passive instruments of those who in early life were accounted far their inferiors.

Dr. Combe, of Scotland, gives an account of one of these early prodigies, whose fate he witnessed. The circumstances were exactly such as those above described. The prematurely developed intellect was admired and constantly stimulated by injudicious praise, and by daily exhibition to every visitor who chanced to call. Entertaining books were thrown in its way, reading by the fireside encouraged, play and exercise neglected, the diet allowed to be full and heating and the appetite pampered by every delicacy. The results were the speedy deterioration of a weak constitution, a high degree of nervous sensibility, deranged digestion, disordered bowels, defective nutrition and, lastly, *death*, at the very time when the interest excited by the mental precocity was at its hight.

As a *warning to others* not to force education too soon or too fast, this case may be truly profitable to both parents and children, and a benefit to the cause of education; but, *as an example to be followed*, it assuredly can not be too strongly or too loudly condemned.

# SECTION X.

## SURGICAL DISEASES.

### WOUNDS AND INJURIES.

Wounds are divided into several kinds, according to the instruments or agents, generally, by which they are made; as—

1st. Incised Wounds, which are made with a sharp-cutting instrument—a common cut, or incision with a knife, is an Incised Wound.

2d. Punctured Wounds, which are made with a pointed instrument, as a needle, a nail, or a bayonet. Sometimes a wound is both punctured and incised, as when made with a dirk, which both *punctures* and *cuts*.

3d. Lacerated Wounds, as when done with a rough or dull instrument, as a saw, or stone, or when torn and lacerated.

4th. Contused Wounds, which mean simply *bruises*, the skin not being severed or broken, but the parts beneath becoming black and blue, or "bloodshot."

5th. Gunshot Wounds, made by a ball discharged from a gun or pistol.

Besides the above, there are what are called Poisoned Wounds, such as are occasioned by the bite of snakes, and other poisonous reptiles.

Treatment.—The first thing to be done in the treatment of a wound after it has been thoroughly cleansed with soap, water, and a scrubbing brush, if necessary, especially where blood-vessels *are severed* and there is much hemorrhage, is to *stop the bleeding*. If the bleeding is but slight, or there is no artery severed, the free application of Cold Water may be sufficient to check it; or Salt and Water, or a solution of Alum in Water, or simple pressure. If these fail, and the wound is open or lacerated, sprinkle on a portion of powdered burnt Copperas; to make which, burn upon a hot iron shovel a portion of Copperas until it decomposes and becomes dry and of a red color; then pulverize it, and it is ready for use. It forms an excellent styptic for such purposes. *Never* use anything which is dirty, such as spider webs, tobacco, dung, and grease. After sprinkling on a quantity of this, enough thinly to cover the surface of the wound, or the parts of it from which the hemorrhage proceeds, place over it a clean piece of gauze or other clean cloth—do not put cotton or lint next to the wound—and apply a bandage.

If an artery has been severed, which you will know by the blood being of a bright red color, and coming out in jets or spurts, caused by the pul-

sations of the heart, the only certain way to stop it is to tie the artery. If it cannot be done, and the bleeding is very profuse, you must send for a physician. If the wound is upon either of the extremities, you can stop the flow of arterial blood for the time being, and until a physician can be brought, by tying a cord tightly around the leg or the arm, as the case may be, so that it be above the knee or the elbow, as well as above the wound. There being but a single bone in the thigh and in the upper arm, you can, if you make the ligature tight enough, stop the flow of arterial blood entirely, in the parts below it. But if the wound is in some other part of the body, as on the trunk, the head, or neck, and the patient is likely to bleed to death, if the hemorrhage is not soon stopped, try pressure with the clean finger-tip; if this does not succeed, you must look for the artery, get hold of it, and tie it. This you can do if you will but try sufficiently. Wash out the wound with Cold Water, and then watch for the place where the *light red blood* spurts out; get hold of the artery either with a pair of forceps, or tweezers, or with your fingers; if you do not succeed the first time, keep trying till you do; draw it out a little, and have some one to tie it with a silk or flax thread, which you will leave long enough for the ends to hang out of the wound, by which the thread can be drawn out when the artery sloughs off and the wound is sufficiently healed. If a large vein is severed, instead of an artery, the blood will be of a dark purple color, and will flow out in a steady stream. If you cannot stop it by other means, it must be tied, the same as an artery.

Having succeeded in stopping the hemorrhage, and having removed any extraneous or foreign substances that may have been in the wound, as splinters, dirt, sand, or anything of the sort, you will proceed to bring the lips or edges of the wound together, so that it may heal, if possible, by what is called *the first intention.* This can be done in

## INCISED WOUNDS.

Cleanliness is the first and most important part of the treatment of all wounds of the skin. Soap, clean water, and a brush should be freely used, even though it may be painful; after perfect cleanliness is secured, a clean bandage, dipped in a solution of one in five thousand Bichloride of Mercury, should be applied in such a manner as to bring the edges of the wound together; a layer of cotton is next applied, and then a bandage to hold it in place. The part should be kept at rest, and to secure such rest, it may be well, in some cases, to use a splint. The first dressing should not be changed for three or four days, provided it is not painful; in case it should become painful, of a throbbing character, and red, the dressing should be removed and the part "soaked" in a hot (one to two thousand) solution of Corrosive Sublimate (Bichloride of Mercury) for fifteen minutes; this should be repeated every two hours until the inflammation sub-

sides, dressing the part between soakings as above directed. *Do not poultice.*

MEDICATION.—Many physicians and surgeons recommend nothing to be applied to a fresh wound, in the way of medication, but Cold Water. In a majority of cases, perhaps, this will be all that is necessary, except that a little Tincture of Arnica might be added to the water with advantage, in the proportion of thirty drops to a pint of water, and then pour the water from one vessel into another, several times, to mix them well. With this moisten the pledget, or compress, three or four times a day. The Arnica, however, is more suited to Contused than Incised Wounds.

The Bichloride of Mercury can be obtained at any drug-store in tablets of such strength that one in a pint of water will make a solution of one in one thousand, so that a fourth of one in a little more than a pint of water will make, approximately, one part in five thousand of water. Remember, this is a deadly *poison* when taken internally.

## PUNCTURED WOUNDS,

IF VERY deep, should not be allowed to heal on the surface very speedily, and consequently should not be closed up with Adhesive Plaster. They are very apt to become inflamed and suppurate, and may lead to very serious consequences, if allowed to heal by the first intention at the surface. If you have reason to believe that tendons are injured by the wound, treat it as directed under the head of "Lockjaw." If the wound is of a serious nature and there is threatened inflammation, active Hydragogue Purgatives will be necessary, as Calomel, and the patient may also take a dose of Laudanum or Opium occasionally. The wound should be cleansed to the bottom, by injecting with a syringe, a one in two thousand solution of Corrosive Sublimate, and a piece of clean gauze dipped in such a solution should be stuck down to the bottom of the wound with a generous piece of it projecting beyond the surface.

## LACERATED WOUNDS

HARDLY ever heal by the first intention. There is one favorable circumstance about Lacerated Wounds, however; they are not apt to bleed so much as Incised Wounds. You can generally stop the hemorrhage sufficiently by the application of Cold Water, or a solution of Alum or Salt, or at any rate by the use of the Styptic Powder I have named. You should, however, do all you can to prevent inflammation, or make it as light as possible. After you have checked the hemorrhage and cleansed the wound, bring the part and edges together as well as you can, and retain them by means of strips of clean gauze, moistened in a one in two thousand sublimate solution. Dress with cotton and bandage. Any Incised Wound, I care not how large it may be, and almost any Lacerated Wound, if not

too badly mangled, may be made to heal by the first intention — that is, without inflammation and suppuration — by the judicious use of weak solutions of Bichloride of Mercury.

### CONTUSED WOUNDS — BRUISES.

The best application that can be made to wounds of this character, which are nothing but bruises, more or less severe, is a mixture of Lead Water and Opium, in the proportion of a drachm of the Tincture of Opium, to an ounce of dilute lead water (Lead Acetate).

The part should be put at rest; if necessary, splints may be used.

### GUNSHOT WOUNDS.

In case it is a bad one, or the ball has lodged in the body or part, of course it will be necessary to have a physician or surgeon. If the ball has passed through, and the wound is not serious, it can be treated as any other Punctured or Lacerated Wound. Unless the bullet can be readily located, probing should be avoided, as it simply adds to the irritation and seldom succeeds in locating the ball.

### POISONED WOUNDS.

I have already given, under the proper head, the treatment for "Snake-bites." For the bites of other reptiles, and stings of insects, as spiders, scorpions, and the like, Sweet Oil is the remedy, to be taken internally, in quantities proportioned to the severity of the case, and applied externally. The application to the part of Aqua Ammonia is good for the sting of the wasp, hornet, bee, yellow-jacket, and the like.

### WOUNDS OF THE HEAD.

These are usually more dangerous than wounds on other parts, because the brain is liable to be injured. In treating a wound of the scalp or head, the hair should first be shaved off; then remove extraneous and foreign substances, if any in the wound; stop the bleeding, and bring the divided parts together as well as you can, and confine them with strips of gauze or bandage moistened in Sublimate solution. If the skull be fractured, and some portion of the bone depressed upon the brain, it should be raised; this should be undertaken only by a physician. Treat as directed for Incised and other Wounds. If there be danger of Inflammation of the Brain, give active Cathartics; make Cooling Applications to the head, and bathe the feet in Warm Water.

### CONCUSSION OF THE BRAIN.

In Concussion of the Brain, which is caused by blows on the head, or falling with the head upon a hard substance, causing stupor, insensibility,

and perhaps vomiting, bleeding at the nose, etc., give active Cathartics and Purgative Injections, with Cooling Applications to the head; bathe the feet in Warm Water, and then apply Mustard to them, over the stomach and between the shoulders. Do not bleed the patient without a physician's order to do so.

### WOUNDS OF JOINTS.

When a joint is wounded, as the knee, for instance, the limb should be placed in that position which will best allow the edges of the wound to come together; and then all motion or use of the joint, for the time, must be avoided. In other respects, treat as other wounds. If there be much discharge of the synovial fluid, or the joint-water, you should endeavor to check it the same as if it were hemorrhage of blood, by the application of astringent liquids, or a little of the Red Styptic Powder, or Burnt Copperas. If Swelling and Inflammation occur, keep the patient quiet and use cold applications.

### PROUD FLESH—GRANULATIONS.

Sometimes in wounds that do not heal by the first intention, but inflame and suppurate, and become a running sore, there will occur a *fungous* growth, called usually "Proud Flesh," which will prevent the wound from healing. When this is the case, it may be burned off with Stick Nitrate of Silver, or cut off with a sharp pair of scissors; this will not be painful, as there are no nerves in the granulation tissue; there are blood-vessels, however, so that it will bleed quite freely, but not seriously, and the bleeding can be controlled by pressure.

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## FRACTURES AND DISLOCATIONS.

In all cases of fractures of bones or dislocations of joints, unless there is someone present or near by who sufficiently understands the mechanism of the human frame and is fully competent to the task of managing the case, a physician should be sent for at once. The friends or persons present, should, in the meantime, make use of such measures as the urgency of the case seems to require. If the injury is a compound fracture, by which is meant that not only the bone is broken, but that the skin and flesh are also separated and torn, so that the ends of the bones, perhaps, project, and there is much bleeding, proper efforts, such as have already been indicated for the purpose, should be made to check it, and, if need be, take up and tie an artery or vein. If the patient suffers much pain, he might also take a dose of Laudanum and a little Spirits. Absolute rest and cold applications may be employed until the physician comes.

In the case of dislocation, if there is no one present that can reduce it, that is, put the head of the bone back again into its place—and there is

likely to be swelling of the part, more or less—there should be constant applications made to the part of Warm Water, as hot as can be borne, by means of cloths, until the physician arrives. This will prevent the swelling, and keep the parts in a relaxed condition, both of which are highly necessary. If the parts have swollen much, the free application of Hot Water will reduce it, and relax the muscles, so that the reduction, or replacing of the bone, can much more easily be effected.

It may be necessary to give Chloroform or Ether before a broken bone can be set, or a dislocated bone replaced, and as it is dangerous to give these substances upon a full stomach, the patient should avoid taking food and as little drink as possible until the doctor has done his work.

Absolute rest is essential to the successful treatment of fractures and dislocations. From six weeks to two months are required for a bone to properly and firmly unite. For some unexplained reason, even with the best of care, a bone fails to unite and a second operation may become necessary. Fractured bones usually, notwithstanding the best of care, are shorter than before the fracture, this is almost unavoidable. The X-Rays are very valuable in the examination and study of Fractures.

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## ULCERS AND OLD SORES.

Medical writers usually divide Ulcers into several kinds—1st. The Healthy; 2d. The Specific; 3d. The Irritable; 4th. The Indolent; and 5th. Varicose.

### HEALTHY ULCER.

The Healthy Ulcer, if it is proper to call it an Ulcer at all, is one that heals up by healthy suppuration and granulation, without difficulty, such as usually results from wounds that do not heal by the first intention. Should it not heal thus readily and healthily, it becomes an Ulcer belonging to one of the other classes. The Healthy Ulcer (See "Treatment Wounds") seldom requires anything more than cleanliness and a dressing sufficient to exclude the air.

### SPECIFIC ULCER.

The Specific Ulcer is such as attends a particular or specific disease, as Syphilis, Tuberculosis, and the like, which will be found properly treated of under the diseases to which they belong. It, therefore, remains for me to speak particularly of the remaining three kinds.

### THE IRRITABLE ULCER.

You have an Ulcer, no matter where; it may be on the hand, the foot, or the leg, or anywhere else. It is very sore to the touch, tender, and

easily made to bleed. It is of a red, or dark purplish appearance; discharges but little matter, that of a thin, watery, or bloody character, and it may be very corroding and fetid. The granulations in it are spongy, imperfect, and of a dark red hue. The Ulcer is bounded by a sharp, overhanging or shelving edge, sometimes ragged, or what is called serrated, that is, like fine saw-teeth. The parts around the Ulcer are red and swollen, and usually hard. This is an Irritable Ulcer.

TREATMENT.—The treatment should be active. Sometimes a nerve projects into the Ulcer, causing an extremely tender spot. The nerve should be cut off with a clean scalpel, the Ulcer scraped out, and the fresh bed touched with a mild solution of Nitrate of Silver. Dress with Tincture of Myrrh or weak Sublimate solution.

If there are constitutional symptoms, such as thirst, chilliness, and feverish symptoms, nervous prostration, and irritability, the general system must be attended to. If the skin is dry and harsh, the Alkaline Bath, that is, sponging and washing the whole body with warm water, in which a little Saleratus has been dissolved, should be employed once or twice a day. If the bowels are disposed to be costive, mild Cathartics must be given.

When the irritability and pain have been removed from the Ulcer, change your applications to simple dressings; Dusting Powders, as Boracic Acid, may be used, keeping the parts clean all the time.

## THE INDOLENT ULCER.

THIS is the most common Ulcer to be met with, and is exactly the reverse of the Irritable Ulcer, in almost every respect. The edges of the sore are *everted*, instead of *inverted;* that is, they turn out, instead of hang over, and are rounded, thick, glassy, and quite regular. The granulations in the Ulcer, instead of being red and sensitive, are quite insensible to the touch, of a dull pale appearance, and are generally located at the bottom of the excavation or sore, being, in short, of a fungous appearance and character. The secretion or matter, instead of being thin and watery, is thick, of a yellowish color, and adheres quite firmly to the base of the Ulcer.

Indolent Ulcers are often very difficult to cure. They occur most frequently on the lower extremities, about the legs and ankles, and are oftener to be met with in males than in females.

TREATMENT.—The treatment of this class of Ulcers, like the symptoms, is the very opposite of that of the Irritable Ulcer. Stimulating applications are to be made, the first effort being to change the sore from its sluggish, indolent character to a healthy activity.

The Ulcer should be scraped out thoroughly until it bleeds freely; then washed out with Clean Water, and touched with a solution of Nitrate of Silver. Dress with Tincture of Myrrh or mild Sublimate solution.

The next step will be to heal up with proper applications, such as Dusting Powders. At first, the wound should be dressed twice a day, washing with Sublimate solution before each application of the powder.

If any fungus or proud flesh appears, treat as previously described for Proud Flesh. It may be necessary to apply the Caustic Potash occasionally to the edges of the Ulcer, or to touch them with a piece of the Lunar Caustic. If tending to Gangrene, sprinkle on freely of Powdered Charcoal.

As a rule, never use Poultices, or Salves, or Ointments on Ulcers. Mercurial ointments may sometimes be used to advantage, which is an exception to the above rule.

Rest of the part may be essential to the successful treatment of Ulcers.

Constitutional treatment should not be neglected. Bathe the surface frequently; keep the bowels in proper condition, with Laxative and Alterative Medicine, occasionally giving an active Cathartic.

## THE VARICOSE ULCER.

This class of Ulcers almost invariably occur on the lower extremities, generally about the ankle and sides of the leg. There is always a varicose or swollen condition of the veins in the part; hence the name. In other respects, the Ulcers may be either irritable or indolent. They are usually very tender to the touch, and often very painful when the part is exercised. Nearly all the small veins in the vicinity are involved, and the bluish red color of the sore extends some distance around. The leg will often be greatly swollen or enlarged, mainly on account of the engorged state of the veins.

Treatment.— If the Ulcer be of the Irritable or Indolent character, treat it accordingly. The only peculiarity of treatment called for is for the engorged and enfeebled state of the veins in the part affected. For this, use astringent and tonic washes, as Dilute Lead Water. If the Ulcers appear to be indolent, use also Tincture of Myrrh as a wash.

In addition to the above, and what is perhaps of the greatest importance, apply what is called a Roller; that is, a compression or bandage, by means of a long strip of muslin, about two or three inches wide. Let it be long enough to wrap the foot and leg from the toes to the knee, or above the swelling. Begin at the toes, and wind round, drawing pretty tight, so as to compress as much as can be borne, and continue winding till you get above the swelling, allowing the edges of the roller or bandage to overlap each other a little. Remove it at least every morning and evening, to wash and dress the Ulcers, and then apply again, each time drawing the roller a little tighter. This will reduce the swelling and the engorgement of the vessels, and in the course of a few days the Ulcers may be in a condition to commence healing. If the edges of the sores are hard, and will

not heal, scarify them, and apply Stimulants and Astringents, and occasionally a little Caustic. The bandage should be adjusted before putting the leg down from the bed in the morning. Use the limb as little as possible, and keep it up on a chair or some other elevation at every opportunity. Rest in bed for a short time may be necessary. A silk elastic stocking should be worn, always after the Ulcer is healed.

It is very common to meet with cases of this kind, called "Old Sore Legs," originating from fever, or from drinking whiskey, or from injuries to the part, which have been neglected. In all such cases, you can succeed in effecting a cure if you will pursue the above course, rigidly, and for a sufficient length of time.

The constitutional treatment should be more or less such as recommended in the other kinds of Ulcers.

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## GANGRENE.

GANGRENE is death of a part of the body, while the balance or surrounding parts are in a more or less healthy state. Gangrene may be the result or termination of inflammation, as of the bowels, or other part of the body; it also, and most commonly, results from Wounds, Injuries, Burns, and the like; also from Freezing, Compression so as to stop the circulation of the blood in a part, Dropsy, Scurvy, Ulcerations, and the like; it accompanies some of the constitutional diseases in which the vitality is lowered; this is especially common in Diabetes.

When Gangrene takes place, the pain in the parts, though ever so great, ceases; the inflamed part assumes a darker color, perhaps of a bluish purple, and becomes cold, flaccid or soft; the circulation in it ceases; serum exudes through the skin, raising the cuticle into blisters; the part finally changes to a dirty brown or black color. If the Gangrene is extensive, the patient becomes excessively thirsty, with dry tongue, and a cold sweat breaks out over the body; the pulse becomes quick and small, and sometimes irregular; the face flushed, with more or less irritative fever; great anxiety of countenance, prostration of strength, and perhaps Delirium, Hiccough, and Death.

TREATMENT.—The first and principal thing to be done is to arrest the spread of the disease; while at the same time the patient's strength must be upheld, and Nature assisted in separating the mortified parts from the living, so as to prevent absorption of the poisonous matter into the system. If the Gangrene is external, as of a wound, the most powerful Antiseptic Washes must be applied. The part should be thoroughly bathed with Tincture of Myrrh. Balsam of Peru may be added to the Tincture of Myrrh. As fast as the mortified flesh becomes loose, it should be removed, and the remedies applied again.

Internally, the patient, in order to support his strength, and also to counteract the Gangrene, should take Port Wine and Peruvian Bark, or a little Quinine.

Where the danger of Gangrene is internal, as from Inflammation of the Bowels, Cathartics must be taken internally; such as Castor or Sweet Oil and Spirits of Turpentine, in equal parts, or two parts of Oil to one of Turpentine, and taken in tablespoonful doses every hour or two for a while, till they operate on the bowels; then at longer intervals. The whole external surface of the abdomen should be bathed with Tincture of Myrrh. In most cases where Gangrene of the Bowels has not actually taken place, you can rely upon the Oil and Turpentine, to be taken freely. If Gangrene of the Bowels actually occurs, only a serious surgical operation can promise any hope of recovery for the patient.

When the Gangrene of a part has been checked, and the dead part is about to separate, a healthy circulation is again established, and a white or light red line, called the *line of demarcation*, appears along the edge of the living part, separating it from the dead. The mortified part then soon sloughs away, leaving a healthy granulating and suppurating surface, which is to be treated as any simple Ulcer, with Poultices and Healing Salves.

In all cases of Gangrene, amputation of the part beyond the affected part is the best, quickest, and safest treatment. Gangrene is a common complication of Diabetes.

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## SPRAINS.

A Sprain, technically called *Subluxation* or Partial Dislocation, is an injury of a joint — most commonly that of the wrist or ankle. Though not really a dislocation, it is often more painful and troublesome, requiring longer time to recover from, than a dislocation or fracture. A Sprain is caused by a severe twist or straining of the joint in any direction farther than its natural range of motion, thus stretching and sometimes tearing or bruising the ligaments, and the surrounding soft parts, or muscles, and in bad cases, of the capsular ligament itself.

Treatment.— The first indication is to allay inflammation. If there is much swelling, frequent applications of Cold Water should be made. After thus reducing the inflammation and swelling somewhat, an excellent practice is to apply strips of Adhesive Plaster over the part in such a way as to make a complete rigid covering so as to secure absolute rest for the part. A plaster cast may be used instead of the Adhesive Plaster. These should be kept in place for two or three weeks, the part being used as little as possible.

## POLYPUS OF THE NOSE.

Polypus of the Nose is a soft, excrescent or fungous growth which forms in the nose, and, sometimes from its increased size, occasions a great deal of annoyance and inconvenience. There is a kind of Polypus, though rare, that is hard, tough, somewhat like gristle; but the ordinary Polypus of the Nose is soft, spongy, of a light red color, without sensibility, and is attached to the inside of the nose by a small root or pedicle. It sometimes becomes so large that it completely fills the side of the nose in which it is located, and even protrudes. Sometimes, instead of protruding from the nose anteriorly or in front, it passes back into the throat, greatly impeding deglutition or swallowing. The nose also often becomes swollen or enlarged, the sense of smelling partially or entirely lost, breathing through the nose obstructed, the hearing injured, and other unpleasant symptoms.

Treatment.—If taken in the early stages, when the growth is but small, Polypus may be easily cured, and with but little pain or inconvenience. Modern physicians operate and remove it immediately by the use of some instrument, and this is undoubtedly the best and quickest way of securing relief. It requires a special instrument, but the operation itself is almost painless, especially if a little Cocaine is previously applied to the part.

A spur or deflection of the septum may produce symptoms of Polypus, and should be treated much the same as is a Polypus.

Naturally a person should breath through the nose, and if one cannot the cause should be ascertained and removed at once.

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## RUPTURE—HERNIA.

Hernia, or Rupture, exists where some portion of the cavity of the abdomen has become ruptured, from internal pressure, straining, or some other cause, so that a portion of the intestines or abdominal viscera protrudes, forming a tumor of greater or less size, inclosed beneath the skin in a sort of sack formed of a portion of the peritoneum or lining membrane of the abdomen, which is pushed out through the opening before the intestine.

Rupture most frequently occurs in one of the groins; though it may occur at the navel or umbilical region, or any part of the lower abdomen. When it occurs at the groin, it is called Inguinal Hernia; when at or near the navel, Umbilical Hernia; it is also called Femoral Hernia when it escapes through what is called the crural ring, and Scrotal Hernia (in the male) when it passes down into the scrotum, and Labial Hernia (in the female) when it passes into the labia. When it can easily be reduced, that is, returned into the abdomen, or when it produces no pain or hindrance to the

performance of the functions of the bowels, it is called Reducible Hernia; when, owing to its great bulk, and the contraction of the opening through which it passed, it cannot be returned, it is called Irreducible or Incarcerated; and when, in addition to this, the protruded parts become inflamed, constricted, and painful, and the operation of the bowels is obstructed, accompanied, as is generally the case, with nausea, vomiting, quick, hard pulse, and more or less fever, it is called Strangulated Hernia. There are still other divisions, and subdivisions; but they are too technical to be named here.

In some cases of Hernia, the intestine does not protrude, the part protruding being the omentum; in others, it may be the intestine alone; or it may be both. The nature of the contents of the tumor may be known by the following facts: If it is the omentum only, the tumor will be soft, flabby, uneven, inelastic, and insensible, feeling to the touch like soft dough, is easily compressed, and when it is returned into the abdomen, it is not attended with any gurgling noise. While, if the tumor is formed of the intestine alone, it will be smooth, elastic to the touch, becomes tense by coughing, or, by holding the breath, is more easily returned, and is generally attended with a sort of gurgling noise while descending into the abdominal cavity. Where it consists of both, it will have, to some extent, the characteristics of both, but in a less distinct manner than either of the others. A part of the tumor will be elastic and sensitive; while the balance, the omentum part, will present the peculiar soft, doughy, and insensible condition.

Hernia may be the result of general debility, or unusual largeness and relaxation of the natural openings of the abdomen; or of costiveness and severe straining at stool, violent bodily exercise, hard lifting and straining, rough riding on horseback, severe coughing; also of blows, wounds, falls, and the like; it is also sometimes induced by pregnancy. When it results from bodily exertion, as straining, lifting, injuries, and the like, it generally appears suddenly, and is more apt to become strangulated and dangerous; while, when it occurs in consequence of general debility, relaxation of the parts, or a natural predisposition, its formation is more gradual, and in general it may be easily reduced.

Treatment.—The first object to be accomplished in Hernia or Rupture, is to replace the protruded parts into their natural cavity; and the second is to have them retained there. In recent cases, especially of the milder form, or that termed Reducible Hernia, there is generally but little difficulty in accomplishing the first; indeed, the patient can often do it himself. Some cases of Hernia seem to give but little trouble and inconvenience, and for that reason are apt to be neglected; *this, however, should never be done, for there is no telling how soon the case may become serious, if allowed to continue.* In recent cases, where there is no inflammation, the reduction, or returning of the parts, may generally be accomplished without

difficulty. The best position for the patient to assume is the recumbent, or rather upon the sound side, with the hips somewhat elevated, and the thighs brought up toward the abdomen, so as to relax the muscles and parts about the Rupture. Then, either the patient himself, or the assistant, is to make use of manual effort, with the hands and fingers (which effort is medically called Taxis), by gently and moderately raising the tumor with one hand, and compressing it, while with the forefinger of the other hand he presses the protruded parts moderately and by degrees up and into the abdominal cavity, holding the returned part there, while with the next finger another portion is gently pushed in; and so alternating with the two fingers until all has been returned. In external Inguinal Hernia, the pressure is to be made upward and outward, that is, toward the upper point of the hip-bone of the same side; in Femoral Hernia, it is to be made downward and backward; while in Umbilical Hernia, the pressure is to be made directly backward. All violence must be avoided, and great care and tenderness used in handling the parts, so as not to cause pain or injury.

After the reduction has been accomplished, the parts are to be maintained in their place; and this is best done by means of a suitable instrument, called a truss. Hernia is strictly a surgical disease, and one which, unless of a very trifling character, should always be submitted to the direction and care of a physician. If the case is of a slight character, such as can easily be reduced by the patient himself, he may go to a drug-store or surgical instrument-maker's shop, and procure a suitable truss; then, after reducing the hernial protrusion, as above directed, apply the truss, and wear it as directed either by the physician or by the person of whom he obtains it. But if it is of too serious or difficult a character for the patient to manage himself, a skillful physician should attend to the reduction of the Hernial Tumor, and also should direct the use of the truss. The truss should always be applied before the patient gets up from his bed in the morning and while the mass is reduced.

When the Hernia is of the strangulated kind, that is, inflamed, enlarged, causing a derangement of the functions of the bowels, and giving rise to a train of unpleasant or serious symptoms, such as usually attend in such cases, it will be absolutely necessary to employ a physician or skillful operator at once. In case of inflammation, Poultices must be applied to the tumor, and when there is constriction of the Hernial opening, as is generally the case in strangulated Hernia, relaxing medicines and applications must be employed.

After the inflammation has been subdued, and the constriction of the parts overcome sufficiently, reduction of the tumor or protruding parts is to be undertaken and effected in the manner already described, or as the attending physician or surgeon may think best; after which, a suitable truss, or other application, is to be applied, and the patient is to remain as quiet as possible until the danger is past. But remember, in all serious

cases of Hernia, submit the matter at once and without delay to a skillful physician. There are some cases where, on account of the largeness of the Hernial opening, or other causes, the rupture can never be overcome or remedied so that the tumor can be reduced and made to remain in the abdominal cavity—not even by wearing a truss or bandage. When this is the case, a proper suspension sack should be properly adjusted and worn, in which to rest the tumor, and this should also be done under the direction of a physician.

If it is impossible to reduce the strangulated Hernia, it must be operated upon at once, and the sooner the better, for the patient rapidly becomes extremely weak. As a rule, if the operation is undertaken soon enough, it is attended with little risk, and what is better, complete cure can almost invariably be promised, even to leaving off the truss forever.

In children, up to the fifth or sixth year, efforts should be made to cure the Hernia by means of trusses; after that time a perfectly healthy individual had better submit to the operative treatment, as absolute cure is almost the invariable rule; and a Hernia is a dangerous condition, as one can never tell at what moment it may become strangulated and produce death.

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# SHORT TREATISES.

## GANGLION,

Sometimes called Weeping Sinew, is the surgical name given to a peculiar, small, encysted tumor, which sometimes forms in the fasciæ, near the tendons or sinews—usually on the wrists, backs of the hands, and tops of the feet. It is not a very common affection. The tumor contains a fluid, like the white of eggs, or more commonly like milk or cream. It generally occurs near joints.

The probable cause of these tumors is some mechanical injury to the part, which occasions a slight rupture in the fasciæ, or sheath of the muscles, or of the membrane covering the joint, in which case the secretion called the synovial fluid escapes, and occasions the formation of a sac, or cyst, in which the fluid is contained, thus forming the Tumor or Ganglion. It occurs quite often in piano-players.

If the Ganglion is allowed to follow its own course, an opening is apt to be formed eventually, from which a sanious fluid, that is, a fluid mixed more or less with blood, exudes, which may terminate in a troublesome ulcer.

Treatment.—The treatment in such cases should be that which is calculated to promote absorption of the fluid, and adhesion of the surrounding

tissues. To do this two things are necessary: 1st. A strong stimulant application, such as Stimulating Liniments; 2d. Firm compression, by means of Bandages.

Sometimes a Ganglion may be ruptured or broken by means of a quick blow upon it, as striking it with the back of a book or a flat stick. They sometimes recur. If such treatment as this fails (which will be very seldom) you must apply to a good surgeon, and let him remove it.

## FOREIGN BODIES IN THE EYE.

When small substances get into the eye, or under the lids (and none but small substances are apt to do so), they can generally and readily be removed by the proper use of the eye-lashes. For instance, if it gets under the upper lid, which is usually the case, take hold of the lashes of the upper lid, draw it up as far as you can, then shut the eye and pull down the upper lid over the under lid, hold it there and work it about with the fingers for a few moments and then with the eye-lids, and, with a clean, soft handkerchief, or something of the sort, wipe downward over the lashes of the lower lid. The idea is that the lashes of the lower lid will bring out the substance, whatever it may be, and the handkerchief will remove it from the lashes. If one trial does not answer, continue the operation; it will generally succeed. So, too, if the substance should be under the lower lid, use the upper in the same way to remove it. If it cannot be done in this way, then the next best plan is to use a small feather—the wing-feather of a bird or pigeon. Get some person to raise the lid a little, and, with the other hand, sweep round over the eye-ball and under the lid with the feather, and in that way brush it out. Any skillful person can, in this way, readily remove any substance that may get into the eye. A camel's-hair pencil brush may be used instead of the feather.

If hard, sharp substances get in under the lid, and stick fast in the eye, or the lid, then it is more difficult to remove, and it may be necessary to call in a physician or surgeon to perform the operation.

If inflammation arises, as will often be the case, apply Cold Water, and folds of muslin wet with Cold Water, or Boric Acid solution. The eye is a very delicate thing, and must be tenderly dealt with. A very small substance will soon start severe irritation and inflammation. Whenever you find that you cannot readily extract a substance from under the lid, you should, without delay, apply to a skillful physician.

## FOREIGN BODIES IN THE EAR.

It is better, where it can be done, to remove foreign substances from the ear with the use of a small syringe than with forceps. If an insect gets

into the ear, deluge it with Sweet Oil—with a syringe, if you can get it; if not, pour in the Oil anyhow. If you have not Sweet Oil, use Lard Oil, or Melted Lard, or Turkey or Goose Oil. Every family should have a little glass or metal syringe.

If a solid substance gets into the ear, and you have no suitable syringe, and cannot extract it without, call in a physician or surgeon immediately.

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## FOREIGN BODIES IN THE THROAT—CHOKING.

A SUBSTANCE lodged in the larynx generally stops at the narrowest part of that passage, which is just at the upper edge of what is called the cricoid cartilage—that round, hard ring of the throat, called sometimes Adam's apple. But it is not likely to remain there long, as the efforts of the subject, or others assisting him, will be apt to push it down further. The lodgment of a substance in the trachea, producing choking, may be a very serious affair. If the substance remains long, and the patient cannot swallow, life at once becomes endangered. Inflammation also will soon set in, followed by suppuration and ulceration. Or if the substance be very large, it may so press upon the trachea, or windpipe, as to prevent breathing.

The indication in the treatment of a case of Choking is to remove the substance—first, by extracting it if possible. If this cannot readily be done, and it is something that may properly pass into the stomach, that is, something that is digestible and not injurious, then endeavor to push it down into the stomach.

Children are very apt to "choke" while eating, in endeavoring to swallow a substance too large for them. In such cases, a very common and generally successful mode of treatment is to strike the patient immediately several severe blows with the hand *on the back*. Almost all mothers know how to do this. If, however, you find it impossible by ordinary means to remove it, then seat the patient, throw his head back, and open the mouth as wide as possible; then pass your finger down the throat, regardless of his gagging, or efforts to vomit, that is all the better; search with the finger for the substance, and, if possible, *bring it up*. If the substance can be seen, and you have a pair of small forceps of the right size, use them. If, however, the substance has passed too low to be reached in this way, and the patient can swallow, give a Lobelia Emetic, if you have it, or a quantity of Tincture of Lobelia. Give it freely, to produce both vomiting and relaxation of the parts. And if he cannot swallow, the holding of a quantity of Lobelia Tincture in the mouth and throat awhile will itself often excite vomiting. If this does not produce vomiting, give the Lobelia freely by injection or enema, and have it retained. That will produce vomiting. If all these means fail, *send for a physician*, telling him at the same time what he is wanted for.

## FOREIGN BODIES IN THE NOSE.

Foreign substances are not apt to get into the nostrils unless purposely introduced. Such cases sometimes occur in children, by their introducing something, as the stone of a cherry, a grain of corn or wheat, and the like, into the nose or nostril, until it gets beyond their reach, and remains. Such cases are apt to produce alarm, and are sometimes dangerous. Small children should always be guarded, and prevented from having any small substance which they might thus thoughtlessly introduce into the nose; and larger children should always be properly instructed on the subject. The greatest difficulty in removing a substance from the nostril, that has been introduced there, will often be in not having the proper kind of an instrument for the purpose. If you always had that, you could generally do it, without the necessity of calling in a physician. And yet a person ought to know something about the shape of the cavity and internal formation of the nose, in order to be successful, or perform the operation without causing great pain, and perhaps injury to the parts. A small scoop of suitable size is a good thing, and will often answer the purpose. Or an instrument may be made of some tough, flexible wood, as hickory, that will not break, that may answer. This, together with a small pair of forceps, if they can be procured, will generally be all that is necessary. The substance must be sought for, found, and, in the best manner possible, removed or brought out. It will be well in the first place, however, to endeavor to cause the patient to *sneeze* as severely as possible. For this purpose, introduce into either or both nostrils a little Tobacco Snuff.

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## FOREIGN BODIES IN THE WINDPIPE.

To remove a foreign substance from the windpipe is an operation — if it has to be done by an operation — which should never be undertaken or thought of by any one but a skillful physician or operating surgeon. If the patient cannot throw it up by forcible exhalation, or expulsion of the breath, it will be necessary, most likely, to have the operation of Tracheotomy performed — which is to make an opening from the outside into the trachea or windpipe, and remove the substance in that way. For this purpose, call in at once the most skillful physician or surgeon you can find. The operation is not at all difficult or dangerous, when done by one who knows how.

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## CORNS.

All who have been so unwise as to wear tight boots or shoes, have a painful appreciation of the sort of thing a Corn is. They are too well known to need any description here.

TREATMENT.—The callous part of the corn should be removed, being careful not to cut so deep as to bring any blood. The greatest cleanliness must be observed both with the knife or scissors and the hands and toe, as serious cases of blood poisoning have followed carelessness in this respect when trimming Corns. After the callous is removed, the following should be applied every two or three days until a cure is produced; Salicylic Acid, 1 drachm in 1 ounce of Collodion. Of course, a cure cannot be secured if one persists in wearing shoes which do not fit properly, especially if they are too tight.

## BUNIONS.

A BUNION is simply a corn on the big toe; or, more technically speaking, it is an enlargement and irritation of what is called in Anatomy the *Bursa* of the great toe. The cause is usually the same as that of common Corns, and it should be treated the same.

The best prescription that can be given for Bunion or any other kind of Corns, is to go "loose shod," or cut a hole in the shoe over the place where the Bunion is. If the parts around the Bunion are inflamed, soak the part in Warm Water for half an hour or so, at night. If the Bunion is very troublesome, it may be necessary to resort to a surgeon who can readily remove the troublesome *Bursa* and produce a complete cure, provided properly fitting shoes are worn thereafter.

## CALLUS.

CALLUS, in surgery, means a preternatural or unnatural hardness and thickening of some part—especially of the skin. It is really but a species of Corn, being caused by pressure and rubbing by some object with which it is brought into contact, as the shoe. The remedy is *to remove the cause*, and avoid it in future.

A case of Callus should be treated the same as a Bunion. Pare off the hardened skin with a sharp knife, where you can; soak the part in Warm Water, to soften it, and then apply the Salicylic Acid and Collodion, and continue to do so until you have overcome the difficulty; in the meantime remove or avoid the cause of friction or rubbing, which produced it in the first place.

## WARTS

USUALLY appear on the hands, and need no description.

TREATMENT.—To remove Warts, cut or prick the Wart a little, and touch it occasionally with Lunar Caustic, or a drop of Nitric Acid. This

should be repeated daily until the Wart is removed or killed, using a gauze dressing and bandage to protect it in the meantime. Care must be taken in applying the Nitric Acid to get it only on the Wart and not on the surrounding parts.

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## FELON, OR WHITLOW.

A FELON is often an exceedingly painful and troublesome inflammation of the thumb, fingers, or hand, and sometimes of the toes, and almost always suppurates. At first, a slight swelling is seen, accompanied with a deep throbbing and pricking sensation, frequently acquiring great intensity and affecting seriously the sinews and bones, resulting, perhaps, in a stiff joint, produced by the contraction of the former, and possibly a loss of a portion of the bones near the ulceration which has occurred. The disease is usually just beneath the Periosteum, *i. e.*, the membrane which directly covers the bone, so that the bone quickly becomes involved, causing it to die.

TREATMENT.—The proper treatment of Felon—and the only treatment—is to open it; the incision should be a large one and made to extend down to the bone. The sooner this is done the better, for less bone will be destroyed and healing will occur much more rapidly. The operation is painful, but when properly done scarcely requires more than a second. The hand should be rested on a table, the clean knife is introduced as far back on the finger as desired; the pain causes the patient to withdraw his hand, the knife is held still and it cuts the moving finger; the patient really does the operation, the surgeon simply holds the knife against the bone. The throbbing pain is almost instantly relieved.

The finger should, of course, have been previously cleaned, and now it is wrapped in gauze, dipped in a solution (one in four thousand) of Bichloride of Mercury, a small piece of the gauze being tucked down in the incision. The dressing should be changed every day, and for the first day kept moist with the Bichloride solution.

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## POULTICES.

POULTICES, as ordinarily understood—Flax-seed, Elm Bark, Bread and Milk, etc.,—I only mention to condemn; they do far more harm than good, as a rule, and besides they are filthy applications at best. There are some few places where they are useful, but the question, in each case, should be left for the physician. If you think a poultice must be used, use cloths dipped in a hot mild solution of Sublimate, except about the eye, where you should use Boric Acid.

## GOITRE—BIG NECK.

This is an enlargement of the thyroid gland, which is situated in front of the neck, or wind-pipe. The affection is also called Bronchocele, Big Neck, and sometimes Derbyshire Neck. It usually only affects females—girls and women—and is not to be considered dangerous, though it is often troublesome. Sometimes it greatly disfigures the neck, on which account it is very much detested by those who are troubled with it. There is no particular cause that can be assigned for this disease, any more than it seems to be hereditary or constitutional in some families. Its cure is very difficult, slow and tedious, and perhaps can never be entirely removed by medical treatment; though it may generally be greatly relieved. It often occurs in young girls at about the age of puberty, and in such cases may go away in time without any treatment.

Treatment.—The chief reliance is upon external applications, in the form of Washes and Ointments. The best for this purpose is made as follows: Take Iodide of Potassium, 1 drachm; Iodine, 10 grains; Simple Cerate, or Lard, 1½ ounces; mix well into an Ointment; rub a little on the enlargement once or twice a day, and wear a flannel round the neck. The Ointment, owing to the Iodine, will color the neck for the time being, but this may be endured for the sake of the good it will do. The color will gradually disappear after ceasing to use the Ointment. It should be continued, however, for several weeks, or at least until the quantity named has been used. If it should produce excoriation or soreness of the skin, omit it for a few days. At the same time the neck should be washed once or twice a day in strong Salt Water. The patient may also take the same articles used in the Ointment, in the following way: Take Iodide of Potassa, 1 drachm; add ½ ounce, or about two tablespoonfuls, of Water, to dissolve it; then add to it 1 ounce of Tincture of Iodine; commence by taking ten drops of this at a dose, once a day, increasing one drop every day until you get to twenty; and then continue at that till the whole is taken. It can be taken in Sweetened Water, or any other medium desired. Extract of the Thyroid Gland is now made and put up in the form of Tablets, which in some cases is a specific remedy and should be tried in all cases. Measurements of the neck should be taken from time to time to determine any alterations in the size.

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## TUMORS.

The word Tumor has become associated, in the minds of most people, with something which is invariably serious, so that it seems to be time to dispel the fears aroused by that word. A Tumor is any growth or swelling (not inflammatory) which extends beyond the normal outlines of the

body or organs thereof. Tumors are separated into two great classes, Benign and Malignant; to the former class belong all such growths as do not destroy life, and if once removed do not tend to recur; Malignant Tumors do tend to destroy life, and do tend to recur after removal. The commonest of the Benign or non-dangerous Tumors are the *Lipomata*, or Fatty Tumors. As is the case with most Benign Tumors, they are usually multiple, *i. e.*, more than one. They grow very slowly, but may, finally, become quite large, but are never dangerous to life. Of the Malignant Tumors, the *Carcinomata* (Cancers), and *Sarcomata* are the commonest. The characteristics of Malignant Tumors are that they grow rapidly, *i. e.*, an increase in size may be noticed from week to week, or at least from month to month. When removed they tend to recur, unless completely removed. Sooner or later they tend to break down and ulcerate. Pain is a late symptom. They are, usually, in the early stages, single.

The treatment of Tumors consists in their complete removal. The success of operations for Malignant Tumors, depends upon their early recognition and removal. "Quacks" appear to be successful in their treatment of Tumors, but the only cases in which they are really successful are those which are not really Malignant Tumors, they having deceived the people and made them think that what was a simple Ulcer or Benign Tumor was a Malignant one.

Cancer never occurs much before thirty; Sarcoma may occur at any age, though usually during childhood.

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## CANCER.

This is one of the most fearful, and one of the most dreadful, diseases to which the human family is liable. While its formidable nature classes it with those which ought at once to be placed under proper medical care, the same reason renders it most important that its first symptoms should be known and attended to, while there is yet time to save life. Cancer usually commences as a hard tumor, unaccompanied with inflammation, and either *painless*, or the seat of intermittent shooting pain. It more frequently occurs in females than in males, and attacks the breast oftener than any other organ. I have known several cases of Cancer of the Womb, one of which I treated successfully by a surgical operation, in New Orleans. In men the Genitals are more liable to be affected, as well as the chin, nose, and lips of old persons. Cancer oftentimes affects the stomach. Cancer seldom takes place in early life, rarely under thirty years of age. When from the nature of a tumor, its hardness, situation, or age of the patient, danger is feared, and particularly if there be any hereditary tendencies to this disease, attention should be given without delay; neither time nor expense should stand in the way of procuring that assistance which may not

only preserve life, but save from a lingering and painful death. By permitting this disease to run on its course, the glands adjacent to the Cancerous affection become tainted, and then follows a gray-looking ulcer, discharging thin, fetid, watery matter, the seat of shooting and stinging pain. The edges of the sore are generally hard, thickened, and extremely painful. The flesh, which surrounds the ulcer, or sore, will present the appearance of the teeth of a saw.

A Cancerous sore has a peculiarly offensive smell. If you have ever seen one of these sores, or smelt this offensive odor, you can never afterward be mistaken in the disease. Cancers proceed, in general, from Scirrhous Tumors, Warts, Pimples, and other hardened swellings. Its first appearance usually is a hard, irregular lump, forming under the skin, in the breasts, and in the womb of women, and in the lips, face, tongue, palate, testicles, and cheeks generally of men. Any part of the body may be the seat of Cancer, although the glandular parts are the most subject to it. Remember, when a Scirrhous Tumor upon the breasts is attended with a burning, shooting pain, and the skin over it has become dusky, purple, or livid color, it is probably a Cancer. The tumor sometimes grows to large size; it has an irregular, knotty appearance, the nipple sinks in, and there are seen purple veins running in every direction over it. Any one, who is predisposed, from hereditary taint, to Cancerous affections, should be extremely cautious in irritating any little Warts on the face, or other parts of the body, at particular periods of life, as by doing so they may become Cancerous. But if left alone, and not irritated, they will often be dormant during the whole life of a person.

Just before these tumors or lumps break out into an open Cancer, the skin around it will become contracted or wrinkled, and its surface will have a black and blue appearance. After it becomes an open sore, and the thin, watery, irritating fluid begins to run from it, the proud flesh will rise up above the skin, and often grow into large excrescences or lumps. The raw surface will often bleed and look angry. The pain at the same time increases, and the patient grows thin. In some Cancers, particularly of the breast, nearly all of the glands of the body will become affected. The skin and muscles, for a considerable distance around the Cancer, will become hard, stiff, and contracted. The axillary glands and arms frequently become stiff and swell, and the whole body, after a length of time, will partake of the disease. I have known, sometimes, an entire loss of appetite; at others, a ravenous one. In some constitutions, the progress of Cancerous affections is slow and confined to one particular point, while in others it is rapid, and the declining health is daily perceived.

The Rose Cancer, medically called *Fungus Hematodes*, assumes a variety of forms, and attacks all those parts which are the seat of the true Cancer. In the commencement of it, it is only a soft tumor, or swelling of a part, very elastic to the touch, and often very painful. When it ulcer-

ates, it spreads out into a form which resembles a red rose, rises considerably above the surrounding surface, and presents a large mass of bloody fungus or sponge-like substance. It is very apt to bleed, and always presents an unsightly appearance. The same remedies which are employed in the treatment of the true Cancer, are employed in the cure of this.

Remedies.—The usual remedies heretofore have been to remove Cancer by a surgical operation. This, in Cancers of the lips, tongue, and face, will often effect a cure; but in the breasts, and other large glands, the operation is not so successful. The operation, however, will often delay the progress of this disease for a time. If a Cancer is removed soon enough, *i. e.*, before the adjoining lymph glands become involved, or before it becomes scattered over the entire body, the greatest hope for complete recovery may be entertained. Complete removal of the stomach which is Cancerous has been successfully done, so that now days most any organ is accessible for an operation and in so hopeless a disease as Cancer, most any measures which may have the faintest suggestion of hope are justifiably resorted to. Cancer cannot be said to be propagated by contact; but this should be avoided as much as possible — in the intimate relation of husband and wife especially.

At the sitting of the Academy of Science, in Paris, M. M. Bauphietuy and Adelde Roseville, surgeons of great distinction, addressed to the Academy of Medicine a detailed note on the Animalculæ, or small animals resembling lice, which are found in all the Cancers that they have examined. These gentlemen have sought the means which are best fitted to destroy these Animalculæ, and their experiments have led them to recommend the following different articles as washes by which these small animals may be destroyed: Brandy, or the Tincture of Iodine, or Concentrated Solutions of the Double Chloride of Mercury, or the Chloride of Gold, or of Arsenic, or of the Salts of Copper, or of the Nitrate of Silver: each, or any one of these articles, will kill these small animals, medically called Animalculæ, in the short time of twenty minutes, or half an hour at most, and unless they are destroyed by some such agents, it will be impossible to cure this disease, and to a want of knowledge of the proper remedies, may be attributed the failure of curing this fatal and tormenting affliction. This unfortunately is only a theory, and in practice is unsuccessful. The cause of Cancer is unknown. New York State has established a laboratory for the purpose of studying the disease, and there are many individuals working to determine the cause; but, up to the present, none has been successful.

Many lumps occur, in the breasts of women and in the usual seats for Cancer, which are not really Cancer at all; these are the kind of patients "quacks" and like cults are pleased to get hold of; for they tell these people that they have a Cancer and the little lump goes away by itself; the "quack" claims the credit for the cure. The only positive way to

distinguish a Cancer from a growth which is not dangerous, is to have a small piece removed (painlessly by the use of Cocaine) and examined by a competent microscopist. Many people worry and think they have Cancer when they only have a little inflammatory mass which may go away sooner or later, perhaps after the application of some simple remedy, then they laud this simple remedy as a cure for Cancer. This is a tremendous mistake, for no drugs have the slightest effect in slowing the progress of *True Cancer*. The knife is the only thing at present which gives any promise of a cure. When a Cancer has progressed too far to remove it, and when it breaks down, it should be dressed with gauze dipped in a weak solution of Bichloride of Mercury or in Tincture of Myrrh. Permanganate of Potassium may be used, and it will aid in eradicating the odor. Morphine should be freely used when ever there is the slightest pain.

Ordinarily, Cancer produces death within two or three years from the time it was first discovered. There may be a slow growing Cancer which does not cause death in a number of years.

A form of Cancer known as Rodent Ulcer, which usually starts at the outside of the eye and does not form a Lump or Tumor, but simply ulcerates, may exist for many years before producing death. Mutilation is extensive in such cases.

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## WHITE SWELLING AND HIP DISEASE.

White Swelling most generally appears in the knee-joint; though it may, and sometimes does, attack other joints, as those of the hip, ankle, and elbow. It commences with slight pain in or around the joint, which gradually increases, with swelling or enlargement and hardening of the part. It is called White Swelling, because the skin does not, as in other swellings and inflammations, turn red, but remains either of a natural color, or, as is frequently the case, assumes a shining whiteness as the swelling advances. The pain seems to be deep-seated, and though it may be but slight when the limb is in a state of rest, yet on moving the joint becomes almost intolerable. The part around the joint becomes hard and callous, the swelling increases, until finally, if not checked, matter forms and discharges begin, perhaps, from several openings. The disease being seated in the periosteum, or covering of the bone, that is apt also to become diseased, so that not infrequently crumbling and wasting away of the bone takes place. When the disease is seated in the hip, the joint or socket is apt to fill up with osseous or bony matter, so as gradually to dislocate or displace the head of the femur or thigh-bone.

When openings and ulceration take place, fleshy excrescences are apt to protude through the openings or ulcers, and often small pieces of exfoliated or detatched bone pass out. The flesh wastes away above and below the joint; the joint is likely to become permanently stiff, perhaps dislocated;

the patient becomes thin, pale, emaciated, with Hectic Fever, Night Sweats, and great constitutional debility.

White Swelling occurs mostly in persons of a tuberculous family, and affects children much oftener than adults. It is in fact Tuberculosis (Consumption) of the Joint.

TREATMENT.— When the disease is taken in its early stage, or commencement, it can generally be cured without allowing it to gather and break. But to do this, efficient measures must be adopted and thoroughly pursued. Rest is the most essential part of the treatment, but fresh air is also essential; so that the arrangement to secure rest must be so devised as to make fresh air also accessible. Usually the disease occurs in children, so that the bed may be made in a little wagon or baby-carriage. The child must be confined to this constantly, in the day-time; during clear weather the bed should be wheeled out of doors (winter or summer) so as to give the child plenty of fresh air. Massage, *i. e.*, rubbing the entire body with the hands once or twice a day is important. The diet should be palatable and nutritious, using good, rich milk freely. Cod Liver Oil and Syrup of the Iodide of Iron should be administered; five to ten minims of the latter three times a day. As the disease is tubercular, the treatment should be the same as for tuberculosis of any other part of the body, in addition to which complete rest of the joint is essential, which is secured, besides by rest in bed, by means of a plaster cast being applied about the limb so as to completely immobilize the joint. When older people have hip joint disease, or White Swelling of the knee, the joint is put in a cast, a high-soled shoe is placed on the well foot, and the patient is allowed to move around on crutches, the high heel keeping the lame foot off the ground.

If the disease is recognized early enough, by means of the above treatment complete cure may be hoped for. Oftentimes, early in hip joint disease, the child complains of pain in the knee on the same side instead of in the hip joint. Serious deformities, which might have been prevented with early treatment, often result from Tuberculosis of hip and knee; such as stiff joints, dislocations, and contractures.

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## BOILS.

A BOIL, called *Furunculus* in surgery, is a circumscribed inflammatory swelling, and very painful, immediately under the skin. It seldom exceeds the size of a pigeon's egg, and has a central core. Boils generally occur in persons of robust habits and in sound health, and mostly also in young persons. They are also common in people suffering from Diabetes. Sometimes, however, they appear in persons of feeble health. A Boil always suppurates or forms matter, and sooner or later will open or break, and discharge its contents. They are caused by some form of the pus (matter) germs getting into a hair follicle or sebaceous gland and growing there.

TREATMENT.—In describing the treatment, it may be well to say first what not to do, viz: Do not put on poultices or plasters; keep the parts clean, and apply gauze soaked in a solution of Corrosive Sublimate (one part of Sublimate in five or six thousand parts of water). Cutting the boil open early and using these applications may cut the course short. At no time squeeze a boil, for this simply tends to make it spread and adds to the pain. It may be necessary to have recourse to some suitable medical treatment. In such cases, the patient should commence by taking an active Vegetable Cathartic—a good dose, for instance, of the Compound Cathartic Pills; then follow with a dose or two of Sulphur and Cream of Tartar every day—say about a teaspoonful of each once a day. This will keep the bowels open, and at the same time cleanse the system; or a quarter of a grain of Calcium Sulphide may be taken three times a day. This course of treatment, properly pursued, will usually be all that is necessary.

## CARBUNCLE.

CARBUNCLE is a species of malignant Boil, being a livid, red swelling with burning, smarting pain, which gathers, vesicates, and discharges matter, and tends rapidly to Gangrene. The tumor is often as large as a hen's egg, sometimes much larger, and generally has several fistulous openings, from which a thin, acrid, fetid matter exudes, with a large black core usually in the center. They usually appear on the back, loins, between or about the shoulders, and back of the neck. They are, of course, much more painful than ordinary Boils, and are usually attended with headache, more or less febrile symptoms, thirst, foul tongue, loss of appetite, languor, and restlessness. They occur mostly in persons past the middle age of life, and are owing to a vitiated and depraved state of the system. When they occur on the face they are very serious, and usually cause extensive mutilations.

TREATMENT.—In the early stage, at the commencement of the tumor, apply the gauze soaked in Bichloride of Mercury solution, as described under the subject of Boils, keeping the gauze constantly moist with the solution. If the entire surface is lightly scarified with a sharp knife, it will give the Bichloride a better chance to penetrate, besides letting some blood out, which will give relief. If Gangrene (Necrosis) starts, then a deep cross should be cut across the top of the swelling and the dressings continued as above. Cleanliness must be observed constantly. When it begins to heal, Tincture of Myrrh may be used instead of the Bichloride, and, finally, Dusting Powders, as Boric Acid, may be used. Do not use poultices.

It may also be necessary to give some tonic and strengthening medicine, to sustain the system, especially if the disease continues a good while.

# SECTION XI.

## VENEREAL DISEASES.

The venereal diseases are, Gonorrhœa, Soft Chancre or Venereal Ulcer, and Syphilis. They are all infectious, and are usually contracted during sexual intercourse. The innocent may accidentally contract any of them. To inform the endangered innocent and warn the indiscreet is the object of this general statement of Venereal Diseases.

Gonorrhœa is a far more common and far more serious disease than most people are aware of. Many a poor invalid wife is suffering from diseases clothed in medical names which remove all suspicion from their husbands, who were, at some time in their earlier days, while sowing so called "wild oats," so indiscreet as to contract a venereal disease.

The fairer sex are not entirely without guilt either, and many an unhappy marriage has resulted from their indiscretions. Perhaps you think I paint too black a picture, take too pessimistic view of these affairs, but if you could only get a glimpse of what the poor doctor has to see and to hear, you would agree with me that the half is not told. I reiterate my statement, Gonorrhœa is a serious disease, not cured in a few days or even weeks; it may appear to be cured, but is often only lying dormant, awaiting some sexual excess to cause it to light up again, which often occurs as a result of the nuptial night. Gonorrhœa is also the cause of a large percentage of sterility in the male and female, resulting in many fruitless marriages.

Soft Chancre has less serious effects upon society than the other two venereal diseases, and is also less common, usually occurring among the more filthy classes of people. It is difficult to cure at times; but once cured, that is the end of it.

Syphilis vies with Gonorrhœa for first place in producing serious effects upon society. Syphilis is often transmitted to the innocent babe; but on the other hand a large proportion of the world's blind are so afflicted, as a result of Gonorrhoea in the mother at the time of the birth of the child, the child's eyes being inoculated with the Gonorrhœal infection at this time.

If only those who have a tendency to be indiscreet, knew of the harm to themselves and the sufferings to others which their indiscretions may occasion, I believe they would hesitate, perhaps stop, before it becomes too late.

The venereal diseases are horrible, filthy, disgusting disease, which, unfortunately, the innocent sometimes have to suffer from as well as the guilty.

## SYPHILIS.

This is one of the worst forms of Venereal disease, and is very generally known by the more common name of *Pox*. It comes properly under the head of those complaints denominated "Secret Diseases," so often met with in medical advertisements. It is, even in its mildest form, a wretched and disgraceful disease—one which is always to be dreaded, and with which the guilty sufferer—for he is generally guilty—is always ashamed to acknowledge himself afflicted. From six weeks to two months after the appearance of the first sore various symptoms develop over the entire body and it is then termed, *constitutional*, giving rise to what are termed constitutional or secondary symptoms. It then becomes a loathsome and filthy disease, eventually undermining the constitution, destroying the general health, and sapping the very foundations of life, rendering the sufferer a mere wreck in both body and mind—disgusting to himself, and detested and shunned by all around him! It is difficult to conceive why so horrid a disease should exist, except on the ground that it is a direct consequence, or punishment, for the criminal violation of the moral and physiological laws of our being. If it were always confined to the guilty alone in its baneful effects, and the virtuous and innocent did not sometimes have to suffer, it would be far less lamentable, and would present a much less pitiable spectacle to the eye of humanity. But how often does it happen that an amiable and virtuous wife, and sometimes, alas! innocent children, are compelled to suffer what is often worse than death itself, from the effects of this loathsome disease, communicated to them—or to her and thence to them—by him whom they are compelled to call husband and father! But such are the laws of our social, moral, and physiological being—the innocent often have to suffer from being associated with or united to the guilty.

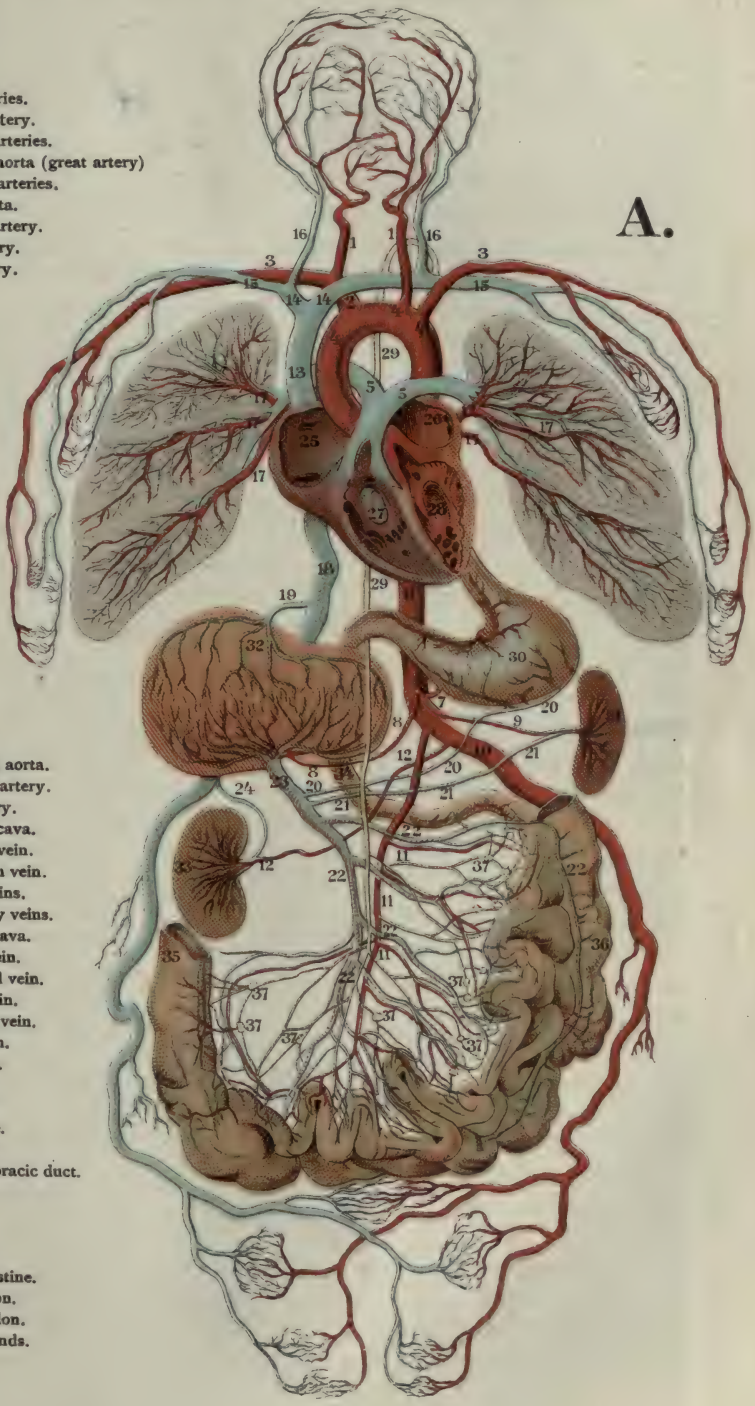
This disease is communicated by infection—that is, by actual contact with the specific virus—and is usually acquired by having sexual intercourse with one who has the disease at the time. It is, in its first or primary stage, located entirely in or upon the genital organs, and is therefore, at first, simply a local disease. The disease is properly divided into Primary, Secondary, and Tertiary. The word Syphilis comes from the Greek word *Siphlos*, and means *Filthy Disease.*

I have said that this disease can be communicated only by actual contact with the specific poison; there is one exception to this, however, and that is where it is communicated by a pregnant female, who has the disease, to the child in her womb—in which case the child will have the disease in the constitutional form from the start. It cannot be communicated by the

# THE CIRCULATION OF THE BLOOD.

**A**—The circulation of the blood diagramatically illustrated.

1. The carotid arteries.
2. The unnamed artery.
3. The subclavian arteries.
4. The arch of the aorta (great artery)
5. The pulmonary arteries.
6. The thoracic aorta.
7. The abdominal artery.
8. The hepatic artery.
9. The splenic artery.




10. The abdominal aorta.
11. The mesentric artery.
12. The renal artery.
13. Superior vena cava.
14. The unnamed vein.
15. The subclavian vein.
16. The jugular veins.
17. The pulmonary veins.
18. Inferior vena cava.
19. The hepatic vein.
20. The abdominal vein.
21. The splenic vein.
22. The mesentric vein.
23. The portal vein.
24. The renal vein.
25. Right auricle.
26. Left auricle.
27. Right ventricle.
28. Left ventricle.
29. The lacteal thoracic duct.
30. The stomach.
31. The spleen.
32. The liver.
33. The kidney.
34. The small intestine.
35. Ascending colon.
36. Descending colon.
37. Abdominal glands.

breath, but the saliva of a syphilitic person is extremely poisonous, and the lover's kiss has often been the source of syphilitic infection; but if a person prick himself with an instrument on which there is some of the Venereal poison, or cut himself with a scalpel while dissecting the body of a person who died of the disease—as is sometimes done by medical students—he will be apt to take the disease.

Primary Symptoms.—The first symptoms of the primary form, when taken in the usual way, are the appearance of what is called a Chancrea, which makes it appearance on the genital organs—in the male, on or about the head of the penis; in the female, on and sometimes a little within the external edges of the vagina, or labia, or on the mouth of the uterus or womb. They begin generally in the form of a small pimple, or vesicle, which soon enlarges, breaks, and ulcerates. They are generally single—usually two or three at most, and do not extend or enlarge much. The true Chancre is apt to assume a circular form, with excavated or hollow surface; raised, hard edges; indurated or hard base, and the matter which forms in it, is tenacious, and sticks close to the ulcer. The lymphatic glands in the groin swell some, but in Syphilis seldom become inflamed and form a true Bubo. This also occurs in Gonorrhœa, but in Soft Chancre, the true Bubo usually forms, the glands becoming greatly swollen and inflamed, usually breaking down and ulcerating. This is one way of distinguishing Syphilis from Soft Chancre.

As to the time which generally elapses after exposure to this disease until the first symptoms appear, this is usually within a few days—say from nine to twenty or more days; but sometimes, owing probably to some peculiarity in the person's constitution, the disease does not show itself for a much longer time, even for some weeks. Cases have been known where it did not exhibit itself for more than a month after exposure; but in the greater number of cases Chancres will appear, if at all, within nine to twenty days.

The Syphilitic disease, as has been said, is communicated by infection, or actual contact with the virus; it will be communicated to the system, or any part of it, by coming in contact with any sore, cut, or abraded surface; and may be, and often is, conveyed by the fingers after handling or touching the Venereal Sore, to the eyes, nose, lips, etc., or if there be any little sores on the fingers, the poison may be absorbed there, and produce the most alarming results. Physicians, therefore, as well as the patient, and every one who has anything to do with the treatment or handling of Venereal Ulcers, should be extremely careful in this matter, and make use of proper caution and cleanliness. Towels, cups, knives, forks, and many other articles have conveyed the infection.

Secondary Symptoms.—The secondary or constitutional symptoms at first make their appearance in the throat and on the skin. The primary Chancre, especially in women, may be entirely overlooked and the first knowledge of the presence of the disease may be the development of secondary symp-

toms, but this is very seldom. They most usually follow the primary symptoms, where the disease has been neglected or badly treated, and generally not until some weeks after the appearance of the primary symptoms.

The first symptoms of the Constitutional Form are, generally, the appearance of ulcers in the throat, sore throat, soon followed by a breaking out on the skin of little red, scaly pimples at first, perhaps, which usually soon change to a copper color, often enlarging or running together; at first they are dry, the skin peeling off; and they may remain dry and scaly throughout, or change to a sort of ulcer, exuding a yellowish colored matter, if the disease is allowed to continue, gradually spreading over the face, body, arms, and head, giving the victim a most unsightly and loathsome appearance.

When the Venereal Virus attacks the throat or palate, the roof of the mouth becomes red and inflamed; patches ulcerate, and thence creep to the palate, destroying it, if not cured; then it communicates to the nose, destroying the cartilage or gristle which separates the nostril, when the voice becomes changed into a nasal twang, and a most offensive discharge is secreted. Sometimes the tongue, the inner part of the lower lip, and lower gums, are affected with these Venereal Ulcers; and last, the larynx or top of the wind-pipe, which destroys the voice, and the patient speaks in a low whisper. The nose is next attacked; an incrustation or scab forms in the nostril; after a short time, on blowing the nose, a quantity of blood, mixed with matter, is discharged, followed in a few days by similar incrustations, when ulceration takes place, and gradually lays bare the bone, and occasions it to exfoliate, when horrible deformity or loss of the nose is the result. All these secretions from nose and mouth contain the virus, and another person coming in contact with them is liable to contract the disease. By these means, may towels, cups, knives, forks, and a thousand and one articles in use in public eating and drinking-places be infected with the Syphilitic virus and innocent people using them contract the disease. A syphilitic should be careful not to spread the disease in this manner, and everyone should be careful about using public articles, being sure that they are clean.

The last and closing remarks upon the symptoms of Syphilis, are on the bones, which do not escape the ravages of this hydra-headed pestilence; the joints enlarge, become painful, and the surfaces of the bones tumefy, forming what are called Nodes, while the interior yields to the process of absorption, or rots away, constituting what is called Caries of the Bones. The ligaments and tendons are also the seat of great pain, often depriving the person of sleep. It is extraordinary the length of time that some constitutions bear up against this horrible scourge of the human race; and the rapidity with which others sink under it. It is, therefore, important that no time be lost in seeking and adopting proper remedies. When the disease is suffered to proceed, and not counteracted by proper remedies, the unfortunate victim will, in the course of time, be afflicted with severe pains, but

more particularly in the night-time; his countenance will become sallow and haggard; his hair fall off; lose his appetite, strength, and flesh; rest much disturbed at night, with slight fever, and a gradual loss of all the muscular energies.

What a lesson is contained in the following from the Sacred Scriptures, Book of Proverbs, chapter fifth. Read and reflect. I can conceive of no language more impressive with meaning than that in which these truthful sentiments are expressed:

"My son, attend unto my wisdom, and bow thine ear to my understanding, that thou mayest regard discretion, and that thy lips may keep knowledge; for the lips of a strange woman drop as an honey-comb, and her mouth is smoother than oil; but her end is bitter as wormwood; sharp as a two-edged sword. Her feet go down to death; her steps take hold on hell. Lest thou shouldst ponder the path of life, her ways are movable, that thou canst not know them. Hear me now, therefore, O ye children, and depart not from the words of my mouth. Remove thy way far from her, and come not nigh the door of her house: lest thou give thine honor unto others, and thy years unto the cruel: lest strangers be filled with thy wealth; and thy labors be in the house of a stranger; and thou mourn at the last, when thy flesh and thy body are consumed, and say, how have I hated instruction, and my heart despised reproof."

On examining the Secondary or Constitutional Symptoms, I have found them increased to a fearful extent by drinking spirituous liquors, sexual intercourse, exposure, and excesses of various kinds, which have had more or less tendency to spread the disease while under the effects of this active medicine. With regard to the use of Mercury in this disease, I admit, when properly used, that great benefit may be derived from it; but the rash, indiscriminate, and unqualified abuse of it has been productive of infinite mischief, not only in the hands of quacks, but likewise where patients have endeavored to cure themselves by the use of the advertised nostrums, professing to be entirely vegetable and harmless, and yet composed of the most active compounds of Mercury, by which thousands have been mercurialized and their constitutions entirely destroyed. We see every day the bad results to those who have been ensnared by the specious pretensions of uneducated persons, who pretend to cure the disease, whose indecent advertisements pollute the walls of the various large towns and cities, and obtrude themselves, at every turn, on the gaze of the passer-by. At one time Mercury was declared to be a specific in all Venereal disorders, hence it was given in all cases and forms of Venereal affection, or supposed Venereal complaint, even in the simple form of Gonorrhœa, and pushed to a frightful extent in many instances; the patient being often salivated, until he or she expectorated several pounds of the saliva in the day, till the face was swollen, and the teeth loosened, and the tongue swollen and hanging out of the mouth; in this dreadful situation the

learned quack, or mercurialist, wisely concluded that he had affected the patient's constitution, and with good cause, too; for the constitution was in general so fully affected, that the patient was seldom afterward free from disease of the bones, mercurial eruptions, and various other diseases to compensate him for the loss of the Secondary Venereal symptoms; which, however, were not infrequently retained into the bargain. At present, fortunately for those afflicted with this disease, a more rational system is adopted. Mercury, though looked upon as a specific, is not pushed to the fearful extent it was formerly. The Medical Profession differ in opinion as to the best method of treating Venereal complaints. Some condemn the use of Mercury, in any form; while others prescribe it, believing it to be the only certain method of curing the disease. Now, the truth is, that neither of these opinions is entirely correct; for in my opinion, in all cases, Mercury, in some form or other, is indispensable, and must be used to remove the Syphilitic virus from the system; but Mercury alone cannot produce a complete cure. Tonics are just as essential as Mercury, and the most important feature of all is time. Mercury cannot completely eradicate the disease in less than three years; true, all symptoms may disappear in six months with proper use of Mercury, but stop then, or in less time than three years, the constant use of Mercury is to invite failure. No one suffering from Syphilis should marry until all symptoms have disappeared, and a three years' conscientious use of Mercury has been followed out.

The treatment, then, of Venereal disease, resolves itself into three heads, viz: the *Primary*, *Constitutional*, and *Tertiary*. We shall first consider the local treatment of the various primary sores, and then the constitutional treatment. A Chancre is a sore with a thickened base, circumscribed inflammation, and want of disposition to heal. The parts most apt to be affected are, in men, the prepuce, head of the penis, and orifice of the urethra, and in the angle between the glands and the body of the penis; and in women, about the labia or lips of the vagina, nymphæ, and clitoris, but, in some instances, they have extended as far up as the mouth of the womb.

Tertiary Syphilis only makes its appearance in syphilitics who have been improperly or insufficiently treated with Mercury. This form consists in the formation of swellings, or tumors, which break down, forming syphilitic ulcers; they may occur under the skin, or in the internal organs, or in the brain. These swellings are called *Gummata*. Diseases of the spinal cord, brain, and arteries are late results of Syphilis.

Treatment.—The important part of the treatment of a Chancre, *i. e.*, the primary sore of Syphilis, is cleanliness. Do not burn or cauterize it, or use strong or irritating drugs; the best dressing is to dust it with Boric Acid. The sore will get well in the course of a few weeks without more treatment. By the time the sore makes its appearance the disease is

already constitutional and cannot be stopped. It is almost impossible to distinguish a Chancre (positively) from a simple sore, or from herpes, and no Mercury should be taken at this time, for it is of the utmost importance to know to a certainty whether one has Syphilis or not, and taking Mercury will mask the other symptoms if one has Syphilis, and will do no good if one has got only a simple sore. A sore that spreads rapidly and ulcerates extensively is not a Chancre (primary sore of Syphilis), but is in all probability a venereal ulcer (which see), and requires entirely different treatment from the Chancre.

The diet, in the meantime, should be light and mainly vegetable—avoiding Pork, Fat or Salt Meats, Liquors, Tobacco, and remain as quiet as possible. The bowels should be, and indeed must be, kept in a loose condition by the use of the proper kind of physic, and for this there is nothing better than the pill of Aloes, Belladonna, and Strychnia—do not use Calomel, or Mercury in any other form—two pills a day. When they begin to operate freely on the bowels, perhaps one pill a day will be enough.

Treatment for the Constitutional Form.—The way in which a constitutional taint occurs is by absorption of the poisonous matter from a Chancre, hence the necessity of keeping these sores well cleansed from the start. The Constitutional and Secondary Symptoms of this disease, as has already been stated, usually show themselves first in the throat and mouth, and on the skin. Syphilitic sore throat is very apt to occur to some extent in this disease, and is often mistaken for common sore throat. On looking into the back of the throat we see a dusky redness, and here and there circular or semi-circular patches covered with a whitish and very tenacious secretion; these patches often occupy the surface of each tonsil; they may remain indolent for a length of time, but sooner or later they ulcerate and form deep, irregular sores; in ordinary cases, the pain, inflammation, and swelling are much less than that we find in common sore throat. As soon as these spots or ulcers appear they must be attended to, and not allowed to spread, or the virus to be absorbed further, by being touched or burnt pretty thoroughly with Lunar Caustic (Nitrate of Silver) or Caustic Potash, and the throat and mouth well gargled and washed out several times a day with some proper gargle, such as I shall presently name.

When the skin becomes affected, which may be simultaneous with the ulcers in the throat, or soon after, and sometimes, though rarely, without any soreness of the throat, reddish and brownish spots appear here and there on its surface, and blotches of a copper color are dispersed over different parts of the body, on top of which there soon forms a thick scurf or scale, which falls off after a short time, then succeeded by another, which, occurring several times, and at length being cast off, leaves a deep spot, in which an ulcer or sore is formed, which discharges a thin acrid matter. When the Venereal poison is secreted in the glands of the throat and mouth, the

tongue will often be affected, so as to occasion a thickness of speech; the tonsils, palate or uvula will become ulcerated, so as to produce a soreness and difficulty in swallowing, and likewise a hoarseness of the voice. If the disease affects the eyes, obstinate inflammation will also attack these organs. The matter sometimes falls on deep-seated parts, such as the tendons, ligaments, and periosteum, and occasions hard, painful swellings to arise, known by the name of Venereal Nodes. When this disease is permitted to go on, and is not counteracted by proper remedies, the patient will be afflicted with severe pains, particularly in the night-time. Hard swellings spring up upon the bones, which soften, ulcerate, and waste away. The skull bones, in particular, are apt to ulcerate and exfoliate in large pieces. The shin bones and the bones of the arms are covered with Nodes, or hard, painful swellings, which are always most painful when warm in bed. The flesh wastes away; the hair falls off; the strength and appetite fail; the sleep is disturbed and unrefreshing; and in the end all the symptoms of fever appear. In the worst forms of the disease, if allowed to run on, a universal rottenness pervades the flesh, skin, and bones. Next to the Confluent Small-pox, it is the most filthy, loathsome disease in the whole catalogue of human maladies.

In the treatment of this disease, it is always necessary to use Mercury internally or as an ointment; in either case finally being taken up by the blood. The external application of Mercury as in the Ointment, Black Wash, and the like, has the advantage of producing the least disturbance, as it does not go into the stomach, and can produce no disturbance of it unless very long continued, or used in too great a quantity, when it may, by absorption, affect the general system, while it neutralizes or destroys the poison by coming in direct contact with it. Salivation by Mercury, once thought to be absolutely necessary in order to cure this disease, is not only not necessary, but always injurious and to be avoided.

Special Treatment.— If there are ulcers in the throat or mouth, touch them occasionally with Caustic, and gargle with Borax and Alum solution. If the skin is affected, it should be kept well cleansed, by using Soap and Water. Occasionally use the warm Alkaline Bath, or Warm Water in which some Saleratus or common Salt has been disolved, or common Lye added.

For Tertiary Syphilis we have a specific in Iodide of Potassium as we have for Syphilis, proper, in Mercury. There is nothing more satisfactory in medicine than the complete removal of a gumma or the healing of a syphilitic ulcer by means of Iodide of Potassium. This drug is at first given in comparatively small doses (10 to 20 grains three times a day), but can gradually be increased so that the patient will tolerate larger quantities of the drug, which is necessary to success. Syphilis can positively be cured by Mercury; however, Mercury should not be used until all doubts about the diagnosis have been removed.

The diet must be mild, unstimulating, and mainly vegetable. Should the bones become affected, as with nodes, swellings, pains, and the like, and especially if much Mercury has been taken, the patient should take twice a day 5 or 6 drops of dilute Hydrochloric Acid in half a tumbler of water, or just enough to make the quantity of water pleasantly acid, like Lemonade. A strong solution of Sulphate of Copper is highly recommended by some as a wash for Sores in the throat, as well as for Chancres: to be made by adding 30 grains or an even teaspoonful, powdered, to an ounce or two of Water, in a vial; wash the throat and mouth with this by means of a swab or feather, two or three times a day. For nodes and swellings of the bones, rub them every night with Mercurial Ointment, or a Liniment composed of equal parts of Chloroform, Spirits of Hartshorn, Tincture of Camphor, and Laudanum.

## HEREDITARY SYPHILIS.

A WOMAN having Syphilis will early abort her first conception; the second will be aborted a little later; the third may run to full term, but will be still born; the fourth child may live, but will be unhealthy and may die soon. A syphilitic child always looks old and dried up and is unhealthy. Such children are a curse to themselves and to their parents, they should be treated with Mercury, preferably by inunctions or with Grey Powder.

## GONORRHŒA.

THIS disease, more commonly known by the vulgar name of Clap, is simply an inflammation of the mucous or lining membrane of the urethra, or inner surface of the penis in the male, and of the vagina in the female. The person first experiences a slight degree of heat and itching in the urinary passage, and a feeling of scalding in the discharge of water; the edges of the opening swell, become red, and immediately after the discharge is observed a thin whitish or pale yellow matter, which gradually increases in quantity, and becomes thick and of a deeper yellow. It sometimes presents a greenish and even a bloody appearance, depending on the greater or less severity of the attack. You are enabled, therefore, from the color and appearance of the matter, to judge of the degree of inflammation present. If the disease is deep or involves the bladder, the neck of the bladder becomes irritable, producing a constant desire to make water. The foreskin of the penis will become so swelled, in some instances, as to prevent its retraction over the glans, and, in other instances, being retracted, it remains tight around it—the one called *Phymosis;* the other *Paraphymosis.* When proper attention is not paid to cleanliness, the end

of the penis is very irritable; inflammation is apt to be severe; the under surface of the urinary passage becomes hard and feels likes a cord; the penis is also frequently stiffened throughout the whole extent, and turned down, producing what is called *Chordee*, from the irregular contraction which occasions a curvature of its under part or side. This symptom is most frequently at night, when excited by the heat of the bed. In ordinary cases of Gonorrhœa, the peculiar inflammation of the urethra, which constitutes the disease, does not extend up the passage beyond two inches from its orifice; in slight cases there will be only a slight heat and scalding in discharge of water, and some little narrowness of the passage. If proper care and attention are paid to the disease it will get well in the course of four or five weeks; but, where it is neglected, it will continue for many months, and even years, producing Gleet, Strictures, Disease of the Kidneys, and accompanied by a general uneasiness in the loins, testicles, and bladder, which often affect the whole of the lower belly or pelvic region.

In women the disease is generally more mild, and not so apt to irritate the bladder, or to produce inflammation. The pain is commonly slight and soon disappears, the scalding more frequently absent, and the running soon terminates in a discharge of matter, which bears a close resemblance to the Whites, or Leucorrhœa.

No certain time can be fixed upon for Gonorrhœa to make its appearance after the infection has been received. In some cases the poison will lie dormant two or three weeks; but, in general, the disease will show itself in from four to seven days. This disease has no connection with that of Syphilis, and is but a simple, local, but peculiar inflammatory affection, communicated always by infection or actual contact with the specific virus, and affects no part of the system but the genital organs, and does not become constitutional, though often chronic. The disease admits of a certain and speedy cure, in ordinary constitutions, if properly attended to, or commencing in the early stages of the disease. In a great many cases, however, it is frequently rendered tedious and very painful, by a desire to conceal the malady, drinking spirituous or fermented liquors, improper diet, want of cleanliness, and sexual intercourse. If properly attended to, a cure may be effected in a week or ten days, or probably earlier; but when it is neglected, it will continue for many months. Another risk arising from a long continuance of the disease, is the taking place of Stricture, which may be known by difficulty and pain in making water; and, instead of being discharged in a free and uninterrupted stream, it splits in two, or is voided drop by drop. From neglect, it assumes a most serious and dangerous nature, as it not infrequently blocks up the urethra, or passage where the urine flows, and often a total suppression is the consequence. Warts on the glands or end of the penis sometimes appear. They should be nipped off with scissors, and their roots touched with Caustic. This is by far the best way of treating them. Sometimes their renewed growth is

prevented by touching them with strong Acetic Acid. Gonorrhœa is often attended by considerable inflammation, extending to the glands in the groin, or to the testicles, which become swollen and extremely painful to the touch. In such cases of swelled testicle, bathe well in Warm Water, three or four times a day, and wear a suspension bag, which can be purchased at any drug-store.

Treatment.—A radical cure of this disease cannot be effected, so avoid all powerful injections. Throughout the course of the disease the bowels should never be allowed to become constipated in the slightest degree; a daily dose of Salts (Phosphate of Soda, is to be preferred) should be taken to prevent this. Some recommend the use of injections from the start; if they are used in the early stages, mild ones alone should be employed, such as five or six grains of Lead Acetate, or Zinc Sulpho-carbolate to an ounce of Water. The syringe should have a very blunt nozzle. The injection may be used two or three times a day, urinating first, and then grasping the penis back near the root, and pinching so as to prevent the injection from going back beyond this point; if this latter precaution is not observed, the disease may be carried back into the bladder. In the early stages it may be well to add a drachm of Tincture of Opium to each ounce of injection. A syringe-full is a sufficient quantity to use at one time. To aid in preventing Chordee, five grains of Chloral and ten grains of Bromide of Soda may be taken each night before retiring. Never "break" a Chordee, use Cold Water to make the erection go down. The following may be taken in teaspoonful doses, after each meal: Oil of Cinnamon, ten drops; Oil of Sandalwood, a drachm; Solution of Ammonium Acetate, half an ounce; add Water to make two ounces. Coffee, Tea, Alcohol, and sexual intercourse must be avoided. Tobacco must not be used in any form. The diet should be light, drinking plenty of water, especially the Alkaline Mineral Waters. Cotton should not be tucked in around the foreskin to catch the discharge, but a Gonorrhœa Bag (obtainable at any drug-store) should be worn. Rest, *i. e.*, bodily and mental, should be indulged in as much as possible. The penis should often be soaked in water as warm as can comfortably be borne, and if urination is painful, this will be much relieved by urinating while the penis is immersed. In the later stages stronger injections may be used, such as ten to twenty grains of Acetate of Lead or Nitrate of Silver, to an ounce of Water. Cleanliness of the parts is of the greatest importance. There are three dangerous complications of Gonorrhœa: Inflammation of the Testicles, Inflammation of the Bladder, and Gonorrhœal Rheumatism. A physician should be consulted in case any of them should develop, and, if possible, a physician should be consulted in all cases of Gonorrhœa, as he may prevent these serious complications.

## SOFT CHANCRE—VENEREAL ULCER.

Venereal Ulcer is an infectious disease, usually contracted during illegitimate sexual intercourse. It usually makes its appearance upon the Genital organs a day or two after exposure, in the form of a small red spot or Ulcer, which rapidly increases in size, forming a discharging, unhealthy Ulcer, which tends to increase in size.

The cause is undoubtedly a germ, which has not yet been satisfactorily demonstrated. The disease seems to require filth for its development, yet occasionally it occurs amongst people otherwise clean.

For many years, Venereal Ulcer was confused with the primary sore (Hard Chancre) of Syphilis, producing disastrous results in treatment; for while Mercury causes Hard Chancre to heal rapidly, it has almost an opposite effect upon Soft Chancre. Soft Chancre is a purely local disease, *i. e.*, when the Ulcer is once cured that is the end of the disease; while in Syphilis, the Hard Chancre is only the local expression of a disease which affects every part of the body, and the disease is far from cured at the time the Hard Chancre heals. So long as Soft Chancre was supposed to be a form of Syphilis, it was supposed that Syphilis could be cured upon healing the original sore, and this without the use of Mercury, too.

That this mistake was made and for so long unrecognized is readily explained by the fact that Hard and Soft Chancres can and do occur upon the same person at the same time, and in association with some innocent sores, such as Herpes of the Genital organs, then confusion became even greater.

To distinguish between Hard and Soft Chancre, requires considerable knowledge, gained only by experience and reading, and when the two occur together, for some weeks the diagnosis is difficult in the extreme. I will attempt to point out the difference between a typical Hard Chancre and a typical Soft Chancre: Hard Chancre, usually occurs single and makes its appearance from two to three weeks after exposure. It is usually small and painless, with a firm, almost hard base. The Bubo associated with Syphilis (Hard Chancre) is composed of a few small, painless lumps in the groin. Soft Chancre is usually not single, there are often a number, which may run together, forming one large ulcerating mass. Usually, Soft Chancre makes its first appearance twenty-four hours after exposure; though it may be small, there is a tendency to enlarge; there is more or less pain; it is a soft, discharging Ulcer. The Bubo associated with Soft Chancre, early inflames and is painful, usually breaking down and discharging puss.

Treatment of Soft Chancre.—Continuous immersion of the Ulcer in a saturated solution of Boric Acid as hot as can be borne, is, perhaps, the quickest and surest remedy; unfortunately, this is sometimes difficult of

application; it usually requires a Sitz-bath, and it is difficult to keep up the required temperature. The top of the Ulcer should first of all be removed, and then it should be wiped dry and clean, after which Peroxide of Hydrogen may be poured over it and then, after wiping out, Powdered Boric Acid and Bismuth (equal parts) may be dusted over the surface; apply clean gauze. Ordinarily the foregoing treatment, repeated as often as the gauze becomes much soiled, in conjunction with rest and tonic, is sufficient to effect a cure.

Sometimes the Ulcerous process is extremely rebellious, and has a tendency to spread; then it is that the Continuous Bath must be resorted to, and Bichloride of Mercury (one part in four or five thousand of water) may be used instead of the Boric Acid. Iron tonics, such as Pills of Iron, Quinine, and Strychnia are required.

The Bubo usually has to be opened and treated in much the same way.

Treatment of Bubo.—A Bubo is a swelling of the lymphatic glands in the groin. It comes on with a pain in the groin, accompanied with some degree of hardness and swelling, which gradually increases until, at length, it becomes as large as an egg, which is attended with a pulsation and throbbing in the tumor, and great redness of the skin. No symptom is more difficult to manage than this. Early attention is necessary to prevent its breaking or coming to a head; this can generally be done by the application of some Discutient Ointment. Perhaps the best for this purpose is the Mercurial Ointment; the Iodine Ointment is also very good; they can both be had at the drug-stores already prepared. It should be applied two or three times a day, and rubbed in well. It might be well to use both of these ointments—using the Mercurial one day and the Iodine the next, and so continue to alternate for several days, or until the swelling and soreness disappear. Some persons are so easily affected by Mercury that even the continued application of Mercurial Ointment for a few days will salivate them. Should any symptoms of salivation appear, such as swelling and soreness of the salivary glands, a copperish taste in the mouth, soreness of the gums, and an increased flow of saliva, all of which are unmistakable symptoms of approaching salivation, both the Mercurial Ointment and the Blue Pill should be discontinued, if both are being used, until these symptoms subside; and in their stead the Iodine Ointment and other purgatives can be used. The bowels must be kept loose, and once or twice a week a brisk Cathartic should be given. But it sometimes happens, notwithstanding the means that you employ, the pain, swelling, disposition of the glands to suppurate, or come to a head, will occur. This will be known by sharp pains darting through the Bubo, and a pulsating feeling in it—for when these occur the suppurative process has generally commenced. If the Bubo will advance in spite of all your endeavors to prevent it, you must then scarify it, or even make an incision into it, and keep Hot Bichloride dressings on it continuously (do not use any other kind of a poultice). When pus or

matter is fully formed, the Bubo must be opened by a free incision of the lancet, kept perfectly cleansed with Castile Soap and Warm Water, the wound being afterward dressed as any other granulating sore. Complete rest is indispensable throughout every stage of this disease, and especially is it necessary in case of Bubo. The patient will be apt to plead the necessity of following his business, and the utter impossibility of staying at home. That is his affair; mine is only to protest against exercise, urge the importance of rest, and even the recumbent posture, which will deprive the disease of three-fourths of its terrors.

After the Bubo is once opened, in addition to cleansing it well once a day with warm Castile Soapsuds, it should be washed out and syringed well morning and evening, after using the Soap and Water.

# SECTION XII.

## SKIN DISEASES.

In other parts of this work it has been explained that the skin is an important excretory organ, that perhaps this function is equally important as that of protecting and covering the underlying structure.

The wonder is, that so important a structure, being so badly cared for as it is by the average human being, is not more often diseased and disordered than it is. The skin should be treated with the greatest care and respect.

Skin diseases may be divided into two great classes, the non-syphilitic, which includes most skin diseases, and the syphilitic. Syphilitic skin diseases may simulate almost everyone of the non-syphilitic skin diseases, excepting those caused by Parasites.

Some skin diseases are purely local disorders, while others are simply symptoms of disease of some internal organ. Successful treatment of skin diseases, like all other diseases, requires the discovery and removal of the cause.

### ACNE—PIMPLES.

Blotched Face, medically termed *Acne*, is of two kinds; the common Pimple, called *Acne Vulgaris*, consists of little, hard, inflamed pimples, or pustules, which often suppurate and burst. They appear on the face, forehead, and chin, and sometimes even about the neck and breast. The other variety, called *Acne Rosea*, consists of red Blotches, sometimes of a livid color, which are very slow in their progress, and seldom terminating, like the other variety, in pustules and suppuration. This variety is most usually found on the nose, giving to that organ a red, blotched, and sometimes pimpled appearance; it is also frequently located on the cheeks.

The intemperate or habitual use of Spirituous and Stimulating Liquors, and excessive indulgence in Eating, are the most common causes of this variety; but they are not the only causes; it may be, and often is, owing to Chronic Inflammation of the Stomach or Bowels, and may have been caused by Frost-bite, Erysipelas of the Face, and various other causes.

In the treatment of either Pimples or Blotches, the person should observe the following three things: Make free use of Soap and Water, avoid all Stimulating Drinks and Food, and keep the Bowels loose and regular. Then use the following wash: Take Aqua Ammonia, Tincture of Lobelia,

and Tincture of Myrrh, each, 1 ounce; apply a little of this two or three times a day to the Pimples and Blotches. If pustules form, open them, let out the matter, and continue to apply the liquid. Or use the following wash: Take Milk of Sulphur (Lac Sulphur), 2 drachms; Gum Camphor, 1 drachm; Alcohol and Water, each, 2 ounces; dissolve the Camphor first in the Alcohol, then mix, and wash the parts with a little of this every night on going to bed. The Borax solution recommended for Chafing may also be used occasionally.

## COMEDO—BLACK HEADS.

This is a disease of the sebaceous glands, in which their excretory ducts become plugged by hardened sebum (secretion of the gland). The top of the plug becomes blackened, hence the common name "black head." If the little elevation is pressed a worm-like material is expressed with the black tip; some people mistakenly believe this to be a flesh worm. It is the contained secretion of the gland, forced through a small opening, much as oil-paint is expelled from a paint-tube.

Comedo usually occurs upon the face, especially the chin, cheeks, nose, and forehead. It is most commonly due to the disorders of digestion, or in people who never use soap upon their faces. Sometimes no cause can be discovered.

The treatment consists in attending to diet and bowels. The black plugs are to expressed. The following lotion may be used at night: Green Soap and Alcohol, 1 ounce of each mixed with 4 ounces of Rose Water. Cold cream may be applied in the morning.

## ECZEMA—SALT RHEUM.

This is an inveterate and very troublesome eruption, or "breaking out," which appears on different parts of the body, but most commonly on the backs of the hands, or on the face. It appears usually in very small vesicles, which break and discharge a thin, corrosive, and irritating fluid, attended with severe itching. Sometimes scabs form upon the affected parts, which, after a time, dry up and scale off, or disappear, to be succeeded by others. The affection is too common and too well known to need any further description. It may be proper to state, however, that there are several kinds of Eczema, as the Dry Eczema, which is the most common and simplest form of the disease; the Pustulous variety, which appears at first in the form of separate pustules, which gradually run together and form clusters; the Miliary Eczema which appears indiscriminately over the body, but most usually on the breast, or about the groins and scrotum; and the Eating, or Corroding Eczema

which appears usually in the form of small and painful ulcerations, which run together and collect into larger spots, accompanied with more or less inflammation, and discharge large quantities of thin, watery matter. The treatment in either variety, however, should be about the same, except that for the mild and dry form, nothing but external applications will be required; while in the others it may also be necessary to make use of some alterative or constitutional treatment. There is absolutely no danger from curing an Eczema, or for that matter any other skin disease, just as soon as possible. Eczema is the commonest of all skin diseases.

Treatment.—The treatment of Eczema is divided into the treatment of the acute and chronic forms. The acute form requires mild, soothing, and non-irritating treatment; while the chronic form requires irritating, stimulating treatment to stir it up and make it acute, and then treat as an acute Eczema.

Do not use any soap, and as little water as is consistent with cleanliness, on an acute Eczema. Diet should be light and unstimulating; the bowels in all cases should be made to move regularly once a day. Soothing ointments or lotions should be used, as Boric Acid ointment, or Zinc Oxide ointment, or the Lead and Opium wash. For chronic Eczema two parts of Green Soap to one part of Alcohol thoroughly rubbed in and then washed off will be found useful; afterwards apply ointment of Zinc Oxide. Two drops of Fowler's solution of Arsenic may be given after meals.

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## SHINGLES—HERPES ZOSTER.

Herpes is a disease of the skin lying directly over the course of a nerve, and as it sometimes encircles the body like a belt is called *Herpes Zoster*. In this complaint, the patient's attention is usually first attracted by the sensation of heat, tingling or itching in some parts of the body, where, on examination, he finds several red patches of an irregular form, at a little distance from each other, upon each of which numerous small pimples or elevations appear in clusters. These are little vesicles, and in the course of twenty-four hours they enlarge to the size of a white mustard seed, and appear transparent and filled with a whitish fluid. The clusters or patches are of various diameters, from one to three or four inches, and are surrounded by a narrow red rim or margin, similar to Eczema or Ringworm. During the next few days, other clusters appear in succession; and what is peculiar and distinguishing in this disease, these patches, as they appear, always extend in a certain and regular direction from the first one — generally around the body toward the spine at one end, and toward the lower end of the sternum or breast-bone at the other, seldom going more than *half* round the body, however. Sometimes they ascend across one of the shoulders. The eruption is sometimes very distressing, owing to the

intense itching; otherwise the disease seldom occasions much disturbance. Though sometimes, especially in the commencement, there is a loss of appetite, languor, chilly sensations, headache, sickness at the stomach, and more or less fever, for a few days. The eruption usually continues from fourteen to twenty days, when the little vesicles break, exude their contents, followed by scabs or exfoliations, which gradually dry up and fall off, when the skin slowly regains its natural appearance. The complaint affects persons of all ages. Sometimes painful Ulcers form where the vesicles break, therefore this accident should be prevented if possible.

TREATMENT.—Laxatives or mild purgatives, diaphoretic or sweating medicines, cleansing the surface with warm Alkaline Baths, and alteratives, constitute the proper treatment in this complaint. To prevent rupturing of the vesicles, they should be painted over with flexible Collodion. In adults, five to ten grains of Morphine may be added to each ounce of Collodion; plain Collodion should be used for children. The disease is self-limited and will get well without any treatment. Sponge the body at night with warm Saleratus Water, or warm Water.

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## URTICARIA—HIVES.

HIVES, properly speaking, as generally understood by the people, is a peculiar eruption or cutaneous disease; a disease showing itself on the skin. It makes its appearance very suddenly, generally in large, red blotches, or patches, most commonly on the back and sides of the body, on the arms and thighs; sometimes spreading nearly over the whole body. These blotches raise up in thick whelks, irregular in shape, from the size of a ten cent piece to several inches in extent, often running together, of a florid or purplish red color, and attended with intense itching, a stinging, or burning sensation, very much like that produced from the sting of nettles—hence the name of Nettle Rash. It usually appears suddenly, without any premonitory symptoms, and after tormenting the patient an hour or two, often disappears as suddenly as it came, though it frequently continues all night, and disappears in the morning, to return again at night. The tongue is sometimes affected, swelling up so as to interfere with talking and swallowing; the lips also swell. It is almost exclusively confined to children, or to young persons between the ages of five and fifteen years.

It is a disease of the blood-vessels or the vaso-motor system in which the blood-vessels become dilated. There are numerous causes, but probably disorders of the digestive system are most important. Whatever will produce a derangement of the circulation of the blood, may also produce this peculiar and tormenting complaint.

TREATMENT.—The bowels should be moved—an excellent specific for this purpose is Cream of Tartar and Sulphur, three parts of the former to one

of the latter, mixed with Molasses until it is quite thick, giving a teaspoonful of the mixture two or three times a day, for several days. If this is not sufficiently active, any other mild Physic, such as Senna, or Salts, should be given.

Attend also to the skin. Give the patient a Warm Bath every evening, or a Sponge Bath, by washing the whole body in Warm Saleratus Water. When the condition seems to result from Gastric Indigestion an Emetic should be given (Mustard in hot water), and the bowels thoroughly moved. The diet should be restricted to light digestible articles. Pork, pie, shellfish, and all rich food should be avoided.

The disease is not dangerous, and a few days with the foregoing treatment will generally suffice to eradicate it from the system.

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## COMMON ITCH—SCABIES.

THE Itch, medically called *Scabies*, is an eruption or breaking out of small, pointed vesicles, containing a watery fluid, and causing at times a most violent itching. The eruption appears first on the hands between the fingers, and finally extends to the inside of the wrists, arms, and inside of the elbow joints. It will also extend more or less over the body, and is too well known to need further description. It is contagious or catching, being communicated by contact, and, if not cured, may last for years, and perhaps always. There is supposed to be a kind called the Seven Years' Itch; but the common kind will last seven years, and even longer, if left to itself. The disease is caused by a very small parasitic animal, called the *acarus scabei*. This little mite is about the size of a pin-head. The female penetrates the skin and lays her eggs, two dozen or more, and then dies. The eggs hatch out in from five to fourteen days. The little mites escape to the surface and the process is repeated. The symptoms are intense itching, much increased upon going to bed. They usually inhabit the skin, between the toes and between the fingers; the wrists, ankles, lower part of the abdomen; the penis in males, and the breasts of females. It never occurs above the neck of adults. A Hot Bath, using Green Soap, should be taken, and the following ointment rubbed over the body: Sulphur and Balsam of Peru, 3 drachms of each; Petroleum, 2 ounces. This should be repeated each day for a week, or longer, if necessary. The same underclothes should be worn throughout the treatment, also the same bedding used, for they all become impregnated with the Sulphur. Care should be taken thoroughly to rub the ointment into the affected areas.

TREATMENT.—Either of the following preparations will answer: Take Lard, 2 ounces; Sulphur, 1 ounce; Sal Ammoniac in fine powder, 1 drachm; Oil of Lemon, 10 drops; mix well, and use once a day as an ointment, first washing the parts well with strong Soapsuds. Or, take Lard, 2 ounces;

Red Precipitate, 2 drachms; Burgundy Pitch, ½ ounce; melt the Lard and Pitch together; while cooling, stir in the Precipitate and mix well. Apply this in small quantities once or twice a day, first cleansing well with Soap and Water.

The Itch is purely a local disease of the skin, and consequently it is seldom necessary to take any medicine internally, unless the disease is of long standing, and extended very generally over the body, in which case the patient should take Sulphur and Cream of Tartar.

## PEDICULOSIS.

Pediculi or Lice infest, in the dirty and those accidentally infected, those parts of the skin which are covered with hair.

Three distinct varieties of the *pediculi* are recognized, viz: Those of the head, known as *pediculus capitis;* those of the clothes and body, *pediculus corporis;* and those of the pubic hairs as *pediculus pubis*, or crab louse.

All of these pediculi or lice are visible to the naked eye, as are also the nits or eggs.

Treatment.—*Pediculosis capillitii*, that is, lice of the head, are best removed by cutting the hair close and applying coal oil. When the hair cannot be cut, equal parts of Petroleum and Olive Oil may be applied, washing the hair in the morning with hot Soapsuds. To remove the nits, wash the hair with Vinegar, and then use the fine tooth comb.

To get rid of body lice, the clothing should be boiled or baked for some time and observe proper cleanliness of the body.

For crabs, use Blue Ointment, or a ten per cent Oleate of Mercury Ointment; after several applications take a bath.

## PSORIASIS.

Psoriasis is a chronic inflammatory disease of the skin, characterized by scaling patches of the skin; if these pearly white scales are scraped off there remains a red base or spot. The skin over the knees, elbows, and wrists are most often affected, and, when it is on the extremities, usually both legs or both arms are affected. It may occur over any part of the body. The patches vary in size from a pin-head up to a five cent piece, or larger. The general health is not impaired.

The treatment consists in attending to the general health, such as correcting Dyspepsia, relieving Anæmia, or combating a Gouty state; in other words, curing any diseased condition which may be present. Fowler's solution of Arsenic, in two to four drop doses, is useful. The local treatment consists in a Hot Alkaline Bath, after which the scales are scraped off and

the following applied with a camel's hair brush: Of Chrysarobin and Salicylic Acid, 40 grains each, to an ounce of Traumaticine. This treatment may be repeated every fourth day. Do not get the mixture on clothing or hair; it destroys the former and bleaches the latter.

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## YAWS.

YAWS, medically called *Frambœsia*, from the French word *Framboise*, meaning *Raspberry*, is a disease of negroes, which affects the skin, appearing first in the form of small pimples or eruptions on different parts of the body, generally on the face, forehead, neck, and arms. These pustules gradually enlarge, and terminate in small blisters, sometimes half an inch in diameter, and exude or discharge a thin, whitish, ichorous fluid or matter, which gradually forms into a scab. The disease is contagious, being propagated by contact with the ichorous matter of the pustules. The same person will have it but once. It is supposed to has been imported from among the negroes of Africa. It is not very common among the negroes of this country, but appears occasionally on some of the plantations of the more southern States. It is quite common, however, among the negroes of Cuba. Though considered a disease peculiar to the negro race, white persons will take it, by inoculation, from contact with the poisonous fluid of the pustules.

Accompanying the appearance of the eruption, there are always more or less constitutional symptoms, such as rheumatic pains in the limbs, headache, great languor, general debility, loss of appetite, and sometimes chills alternating with fever. The period during which the eruption lasts may vary from a few weeks to several months, new crops of pustules appearing often, as fast as the previous crop have dried or disappeared. Sometimes, from some of the larger pustules, red fungous excresences will appear, resembling red Raspberries, from which the disease (Frambœsia) takes its name. It also not infrequently happens that on some part of the body one large pustule will occur, perhaps as large as a half dollar or even larger, which terminates in a disagreeable ulcer, and discharges an ichorous and ill-conditioned fluid, corroding to the surrounding healthy skin. It is called the Mother Yaw, and is apt to remain long after the other sores have disappeared, as a foul and indolent ulcer, which is to be treated as such.

The disease shows its first symptoms from three to ten weeks after exposure. Flies are said to carry the specific virus from a person suffering with the disease and inoculating a healthy person, in much the same manner as the mosquito carries and inoculates Malaria. The disease is commoner in children than in adults, seldom occurring after thirty-five. One attack prevents subsequent attacks. There is a marked likeness between this disease and Syphilis.

TREATMENT.—The Yaws is not a dangerous disease, and is generally easily cured, if properly treated. To prevent the disease from spreading by infection, the negro should be kept entirely separate from the others, and in some healthy and well ventilated place. During the early stage, the surface of the whole body should be bathed once a day with warm Lye or Saleratus Water. The bowels are to be kept loose by mild purgatives occasionally. It will also be well to put the patient in a Warm Bath about every other day, for half an hour at a time. He should also take exercise every day, but avoid exposure to cold. The diet should be light, of a digestible character, and nutritious. Tonics, such as the Elixir of Iron, Quinine, and Strychnine should be given; if Mercury is used at all, it should be administered with great caution.

Cleanliness, tonics, and a light, nutritious diet are the essentials of successful treatment. The sores may be dusted with Boric Acid Powder.

# SECTION XIII.

## DISEASES OF THE EYE AND EAR.

As a rule, the general doctor considers that special knowledge is required in the treatment of diseases of the special senses, as are also special instruments, so that no attempt will be made to give complete instructions for the treatment of various disorders of these delicate organs. The object of this section will rather be to give the reader an idea of some of the affections of these organs, and attempt to point out what should *not* be done in case of disease of them, or to point out what should be done in an emergency.

I may say a word with regard to the widespread use of eyeglasses at the present time. There are very few eyes that are perfect, yet they answered the requirements in times gone by, but now the demands upon the eye are so great that the slightest defect may cause trouble, resulting in eye-strain, and a long train of nervous symptoms, including headache, and most varied disorders. Fortunately, we are now able to detect in most cases just where the imperfection lies, and not only are we able to locate the difficulty, but by properly measured and fitted glasses, we are able to correct it. It requires time properly to examine and fit glasses; it cannot be done at one sitting, and the glasses have to be made from the physician's prescription. The "Quack" oculist has reaped a fortune and brought discredit upon Ophthalmology, but the right is bound to conquer in the end.

There are some forms of "cross-eye," which, if attended to early enough, can be cured by the use of glasses; hence the not uncommon sight of seeing small children wearing glasses. As age advances, the eye changes in shape, in most individuals, producing an inability to see objects distinctly, at a distance. To remedy this, a simple magnifying lens is required. Such glasses may be obtained almost in any place, and do not cost much.

### INJURIES TO THE EYE.

Foreign bodies beneath the lid, but not penetrating, are painful, but if carefully and promptly removed seldom produce serious consequences. The corner of a soft linen handkerchief makes a good medium for removing foreign bodies; however, a person with a steady hand may use a

more solid instrument, as a toothpick guarded with a bit of cotton, or even an unguarded needle.

Accidents, in which foreign bodies penetrate the eye, or any part of it, are usually serious, and should have the immediate attention of a skilled physician or oculist. Foreign bodies may remain in an eye for some time, but often the other eye, we do not know exactly why, finally becomes inflamed and ultimately has to be removed.

Burns of the eye, besides being extremely painful, are also extremely serious, and require immediate attention. Cold Water should be applied if nothing else is at hand; if liquid vaseline can be obtained, a few drops should be dropped in the eye. Boric Acid solutions are always useful in injuries to the eye, and also make good eye-washes at all times; saturated aqueous solutions may be used. Boric Acid is one of the best anti-septics to use about the eye.

The tears are secreted by the *lachrymal* glands, which are under the upper lid, above and to the outer side of the eye. The tears running down over the eye serve to keep the transparent corneas clean and clear; they are collected at the inner side of the eye and carried through little canals in both the upper and lower lids to a larger canal, called the lachrymal duct, which conduct the tears to the nose, where they serve to moisten the inspired air.

Abscesses may form in the lachrymal glands and should be opened early. The canals in the lids, or the duct leading to the nose, may become obstructed, causing the tears to run over the lids and down the face. This condition can usually be corrected by proper treatment. Abscesses also sometimes form in these ducts and cause more or less mutilation; they should be opened early and washed with Boric Acid solutions.

A stye is an abscess of the follicle or root of a hair in the group along the margins of the lids. A stye should be opened early.

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## CONJUNCTIVITIS.

Conjunctivitis is an inflammation of the inner sides of the lids and that part of the eye which is white and opaque. Such an inflammation may be caused by getting gonorrhœal pus in the eye; this occurs most often in infants, whose mothers have Gonorrhœa at the time of their birth. Adults having Gonorrhœa, who are not scrupulously clean, are liable to infect their eyes. This is a serious inflammation, and immediate and active treatment is required to save the vision. Every hour the discharge should be washed out thoroughly with Boric Acid solution; then, if a competent physician is at hand, the lids may be brushed with Nitrate of Silver solution (ten to twenty grains to the ounce). This may be done two or three times

a day, the solution, after a minute or two, being washed out with plain, clean water.

There is a contagious *Conjunctivitis* known as Pink Eye. It requires little treatment besides avoiding strong light and insisting on cleanliness, using the Boric Acid wash for this purpose.

*Conjunctivitis* may be caused by foreign bodies getting into the eye and irritating it, or simply catching cold, or becoming fatigued, is sufficient to cause such an inflammation ("blood-shot"). Removal of the cause and the Boric Acid wash are about the extent of the treatment.

The cornea is the transparent part of the eye which protects the pupil. It is a wonderful and delicate tissue, which, considering its delicacy, is not often diseased. Ulcers, Opacities, and Inflammations are the commonest lesions of the cornea. All of the conditions interfere more or less with vision and should receive skilled attention.

The iris is the tissue which contains the characteristic color of the eye. The central circular aperature in this tissue constitutes the pupil. A little muscle surrounds the iris, known as the ciliary muscle. The contraction and relaxation of this muscle causes the iris to move so as to produce the changes in the size of the pupil. The pupil becomes smaller by increasing the light and by diminishing the distance of an object. The pupil is therefore said to respond to light and accommodation. Many diseases cause a modification or complete obliteration of this response, so that the pupil is an important guide to diagnosis and the condition of a patient. The *Anæsthetist*, *i. e.*, the one who gives chloroform, judges, to a great extent, the patient's condition by the appearance and condition of the pupils.

The iris is subject to various diseases, such as inflammations and adhesions to adjacent parts, so that it cannot move.

The lens lies directly behind the iris and pupil; it is transparent, and therefore invisible. Opacities, called *Cataract*, sometimes occur in the lens, which then becomes apparent as a white spot behind the pupil.

*Cataract* may result from injuries, Diabetes, and from age, being a common senile change.

*Cataracts* have given "Quacks" great opportunities, but a true Cataract was never successfully removed without an operation. Cataract operations performed by careful hands are almost invariably successful, and almost perfect vision is restored.

The retina is the inner coat of the eye. It is liable to various diseases, which require a special instrument, called the Ophthalmoscope, for their detection, so that to describe them would be of little value.

Granular Eyelids is a troublesome disease of the lids, which causes them constantly to feel as if the patient had sand in the eyes. They also produce considerable irritation and inflammation of the eye. The treatment of the condition is not very satisfactory, and is long and tedious both for patient and physician.

One final word about the eyes: Never bandage them up without a physician's orders; never put anything into them unless it be plain Salt Water or Boric Acid solution; and never use them in a bad light or under adverse circumstances. They are too valuable to ill-treat or experiment upon. When there is anything wrong, consult a good, reputable physician, and not a "Quack." A good family physician will treat them properly, or, if he feels incompetent, will refer one to a good specialist.

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# DISEASES OF THE EAR.

The Ear includes, besides the external cartilaginous appendage, the canal leading to the internal ear, and the internal ear, which is chiefly composed of the tiny bony ossicles, lodged in a chamber in one of the bones which form the cranial wall (the petrous portion of the temporal bone). Of course, the auditory nerve and certain parts of the brain are essential to the sense of hearing. There are also two accessory structures; the Eustachian tube, extending from the back part of the nose to the inner side of tympanic membrane, or ear-drum, and serving to equalize the air pressure on both sides of the drum, and the mastoid cells, which are a group of honeycomb-like cavities in the bone just behind the external ear. Their function is not thoroughly understood. Any and all of the preceding structures may become diseased, producing pain and more or less impairment of the sense of hearing. The close proximity of the internal ear and mastoid cells to the brain, renders certain diseases of these structures extremely serious. These structures are, strangely, especially liable to inflammations after acute infectious diseases, such as Scarlet Fever, etc.

A troublesome Eczema often occurs about the ear of infants and children. It has the same charactertics as an Eczema of any other part of the body, *i. e.*, there is a raw surface which is moist and which itches. Soap should not be used on this surface; keep the child from scratching it, and an ointment of Zinc Oxide or Boric Acid, will usually effect a speedy cure.

Frost "bite" of the ear should be treated as a frost "bite" of any part of the body, *i. e.*, with Cold Applications; be careful not to fracture the frozen cartilage of the ear, rendered brittle by intense cold.

The natural secretion of the ear, technically called *Cerumen*, and commonly called wax, sometimes collects in the ear in large quantities, dries, and becomes impacted against the drum, interfering to a greater or less degree with hearing. This should be removed by syringing, and had best be done by a physician or specialist. It is a common cause of deafness, and is readily removed.

The tympanic membrane may become inflamed, causing pain (Ear-ache); it may be perforated by introducing a hard instrument from without (which should never be done), or by the rupturing of an abscess of the middle ear. Tremendous concussion, as produced by the firing of a cannon, may rupture the membrane. Such an accident impairs, but does not in itself destroy, the sense of hearing.

Abscess of the middle ear, technically called *Otitis Media*, is not an uncommon cause of Ear-ache. It is a serious disease, not only because of the danger of destroying the sense of hearing, but because an abscess in such close proximity to the brain (only a thin layer of bone intervening) might cause death. Though many Ear-aches may get well without more treatment than the application of heat, yet one can never tell when the inflammation has gone on to suppuration and abscess formation, so that the best plan is to consult a physician in every case of Ear-ache, as proper treatment will diminish the risk greatly. Abscess of the middle ear often follows Scarlet Fever and other acute infectious diseases, and for this reason deafness often results from these diseases. Rest, quiet, hot applications and early puncturing of the tympanic membrane, to let the pus out and relieve the tension, are the essentials of this treatment. Morphine may be required if the pain is very intense.

Middle ear disease, often, not only results in perforation of the tympanic membrane, but in the total destruction of the bony ossicles and entire internal ear.

The mastoid cells often become inflamed, either independently, or in connection with an *Otitis Media*. When an abscess forms in these cells, there is usually much swelling behind the ear, tenderness on pressure, and a rise in temperature. The treatment, like the treatment of all abscesses, should be early opening, to give the pus free exit. As this abscess is located in the bone, it requires a chisel to cut down to it, but the operation is not, as a rule, serious, and does not require much time. Delay should not be thought of, for these cells are like the middle ear in close proximity to the membranes of the brain and the brain itself, and if it should rupture through, it would cause meningitis or abscess of the brain, and probably death.

One word with regard to a running discharge from the ears. This condition is an indication of a long-standing abscess of the middle ear with perforated ear-drums. There is a popular idea that checking the discharge is liable to drive it some place else. This is a mistake, however, and the middle ear properly treated will cure the disease and cause the discharge to stop.

# SECTION XIV.

## MISCELLANEOUS TREATISES.

### THE INFLUENCE OF TOBACCO.

THE habits of smoking, chewing, and snuffing Tobacco have become so universally prevalent, and their effects on the body and mind so obviously injurious, that we feel it to be a duty to do all in our power to speedily remove this barrier to physical reform and improvement. Indeed, we regard the use of these narcotics as dangerous and greatly destructive to the constitution. Is it not a fact that consumers transmit to their offspring a perverted appetite, which becomes more and more intense? Are not the physical sins of parents visited on their children? Can an EVIL tree bring forth GOOD fruit? Are not many of the ills, and much of the disease by which we are afflicted, the result of using Tobacco?

Tobacco is well known to be a powerful Vegetable Poison; a few drops of the active principle, Nicotine, will extinguish life in man, and many animals; if taken in the stomach in substance, a very small portion of the leaf is sufficient to bring on nausea and vomiting, accompanied with great weakness, and a cold, death-like sweat. Many persons have actually been killed by an incautious employment of it for medicinal purposes. When taken into the nostrils in the form of Snuff, a portion of it enters into the sonorous cavities of the face, and gradually impairs the functions of the voice. I have frequently known snuff-takers to lose the power of public speaking in an audible manner. Snuff, from its constant use, has been found to produce abscesses in the tender internal surface of the nose; for, from the infinite number of nerves diffused over the mucous membrane of the nose, it is endowed with exquisite feeling, and the better to preserve the sense of smelling, those nerves are continually lubricated with moisture. By the almost caustic acrimony of Snuff, this moisture is dried up, and those fine,

delicate nerves, the organs of smelling, are rendered useless and almost insensible. To this self-evident bad effect may be added the narcotic, or stupefying power of Tobacco, in any form, by which not only the brain and nerves are injured, but also the eyes. A snuffer can be easily known by a certain nasal twang, or an asthmatic wheezing, or disagreeable noise in respiration or breathing, which resembles snoring. Snuff, also, frequently causes excrescences in the nose, which often end in Polypi, and not unfrequently those predisposed to Tuberculosis, Ulcers, or Cancers, may bring them on by this practice. The drain of the juices by Tobacco has a tendency to injure the muscles of the face, to render them flaccid, to furrow and corrugate the skin, and to give a gaunt, dry, withered, and jaundiced appearance to the human face. The Oil of Tobacco is a mortal poison when applied to the open vessels of a wound. Surely this plant, when taken in substance as Snuff, must not be injurious to the head alone, for it is often carried down to the stomach. I have known many cases where the appetite has been almost destroyed, and Consumption brought on, by the immoderate use of this powder. We were well acquainted with a distinguished gentleman, occupying a high station in society, who was ever complaining of coldness and distress in his head, to find relief from which he took a variety of medicines, who could not be convinced that his difficulties were occasioned altogether by the use of Snuff. He, however, continued the practice, and fell a victim to this infatuation. The least evil which you can expect it to produce, is to emaciate the body, enfeeble the memory, and destroy the delicate sense of smelling. There are many ladies who would feel disgraced to be seen with a Cigar or quid of Tobacco in their mouth, who daily, and almost hourly, use Snuff as a tooth-powder. After a prolonged excitation by this noxious and poisonous agent, the nervous system becomes impaired, the breathing suppressed, a paralytic state of the muscles takes place, and not unfrequently the most fatal consequences result from this poisonous and most powerful stimulant.

Tobacco, so much used in various ways, has the most deleterious effects on the system. Although one of the most virulent poisons in nature, such is the fascinating influence of this noxious weed, that mankind resorts to it in every mode that can be devised to insure its stupefying and pernicious agency. The severe and dyspeptic symptoms, and diseases of the Liver, Lungs, Stomach, and Nervous System, are produced in inveterate Snuff-takers, Chewers, and Smokers, from the effects of the Nicotine. Very many repent sincerely that they have ever indulged in this slow, but sure, poison, which, in many constitutions, leads to such fatal consequences; and could we draw back the covering of the tomb, and know what Tobacco has done in

shortening human life, it would surprise us that man, the image of his Maker, endowed with reason, should have consented thus to destroy himself both mentally and physically.

By chewing Tobacco, all its deadly powers are speedily manifested in the commencement of the practice; its nauseous taste and stimulant property excite and keep up a profuse discharge from the salivary glands. The great increase of this discharge before and after eating, and the large quantities swallowed about that time, is unequivocal evidence of its importance to the digestive organs. What, then, must be the state of that man's digestion, who, until seated at table, keeps his quid in his mouth, and immediately returns it thither after rising from his meal? When we reflect that large quantities of saliva, strongly impregnated with this poison, and even particles of the substance itself, are frequently swallowed, what, again I ask, is the probable condition of such a person's digestive organs? When such persons are affected with Dyspepsia, or other diseases, particularly of the nervous system, they never think of abandoning their Tobacco as the cause, but after suffering a while, place themselves under a physician's care, and pour into their stomachs a quantity of medicine, and raise nature to its wonted tone, only to be again destroyed by the use of Tobacco. The disastrous influence of Tobacco upon the mind is no less fearful than upon the body. No pen or tongue can describe the intellectual ruin occasioned by it. If angels ever weep over self-inflicted tortures, they have mingled their tears over the unspeakable wretchedness of the Tobacco consumer. The mental misery occasioned by the use of spirituous liquors, I have before described, and no one doubts that, like the devil, it tortures its worshipers. But if the Tobacco inebriate should tell his tale of mental wretchedness, it would excite the feeling heart. Liquor and Tobacco go hand in hand in the work of destruction.

The most fashionable mode of using this noxious weed, is SMOKING, which is as poisonous as Chewing, if not more so, particularly to those of delicate and nervous temperaments; the smoke penetrates the innumerable air-cells of the lungs, which it heats and irritates, and, being absorbed from them into the blood, causes Headache, Weakness of the Nerves, Soreness of the Eyes, Restlessness, Palpitation of the Heart, and occasionally produces the Cancer of the Lip, so frequently a subject of surgical operation, and sometimes terminating in derangement. The tone of the stomach is impaired, and indigestion, with its train of evils, is the consequence. In many persons the nervous system is so affected, that the individual becomes tremulous, feeble, emaciated, and sallow, and the result is a diseased state of the Liver. Few articles more powerfully affect the nervous system; it impairs the

memory of those who use it, weakens all their intellectual powers, and sends down its influence to posterity, so that the children of those who use it to excess, are liable to insanity, and a variety of nervous dis eases, which may be conferred on them. What a great degree of darkness still rests on the whole community, in relation to the influence of disease conferred upon our children, both mentally and physically?

With what propriety may we apply to this subject the language which is often used in reference to Spirituous Liquors? What organ in the human body needs these Narcotic Poisons in order to perform its functions in a more perfect manner? *There is not one!* God has made none; nor is there an organ whose healthy action is not disturbed by the use of Tobacco, and which it does not instinctively reject. To every organ it touches, Tobacco is poison.

There are some who suppose that Tobacco can not be very injurious to the body or mind, because there are many who have used it from childhood to an advanced age. It is this mode of reasoning that has blinded the minds of thousands in relation to Spirituous Liquors, as well as Tobacco. The reason why different individuals use them without apparent injury, is because some persons have constitutions of *iron*, while others have frail and delicate constitutions, and are of very nervous temperaments, and liable to disease, from the slightest change; the system feeling its immediate effects. Take a youth and give him a small quantity of Spirituous Liquor, and what is the consequence? Mark his exhilarated feelings, and the injurious effects from this first step, to an infatuated appetite for this demon of the human race. Now administer a small quantity of Tobacco, and mark its effects: presently he turns pale, then a cold sweat comes over him; a general lassitude, or weakness, and deadly sickness, follow in quick succession. Oh! thou invisible spirit of Liquor and Tobacco, if thou hast no other name by which thou art designated, let us call thee Devil, for thy name was derived from Bacchus, a principal leader in the camp of Satan!

Smoking and chewing Tobacco, by rendering water and simple liquors insipid to the taste, dispose very much to the stronger stimulus of Ardent Spirits. My candid opinion is that the use of Tobacco is the greatest obstacle existing to the progress of Temperance, and never will this cause triumph, never will Alcoholic Drinks be discarded as a beverage, until Tobacco ceases to be used as a luxury. I am very sorry to add (but truth is my motto), that many clergymen are subject to this unhealthy and vile practice. There is none perfect; no, not one. A clergyman, of high respectability, informed me, that he had often put a quid in his mouth, and wept like a child under a sense of his vile bondage to that contemptible weed. For a consid-

erable length of time, he continued, often weeping over his impotency (and he was one of the last men you would have suspected as wanting firmness and fortitude), and making inefficient attempts to sunder the bonds by which he was held, until, at length, *in the strength of the Lord*, he protested he would be free, and he was free. Why, then, not quit these evil practices, Liquor and Tobacco? for they certainly affect both body and mind, and destroy the harmony established by the Divine hand between the mental and moral powers The appetites of the body and the passions of the soul disturb, and bring reason and conscience into vile subserviency. In direct and palpable violation of what our blessed Saviour teaches us as the proper daily petition of every soul under heaven, Tobacco leads men into temptation, and delivers them to evil. "Day by day" they take, not "daily bread," but a poison of the most deceitful and malignant kind, that sends its exciting and paralyzing influence into every nerve of the body; so that Nature, no longer able to bear this deadly narcotic, bows down under its paralyzing influence.

Tobacco has spoiled and utterly ruined thousands of boys; inducing a dangerous precocity, developing the passions, softening and weakening the bones, and greatly injuring the spinal marrow, the brain, and the whole nervous fluid. A boy who early and freely smokes, or otherwise largely uses Tobacco, never is known to make a man of much energy of character, and generally lacks physical and muscular, as well as mental energy. To people older, who are naturally nervous, and particularly to the phlegmatic; to those of a cold and more than Teutonic temperament, Tobacco may be comparatively harmless; but even to these it is worse than useless. We would particularly warn boys who wish to be any body in the world, to avoid Tobacco as deadly poison. Will not our young men who love life and health, be inclined to pay some regard to the deliberate and long tried opinion of a medical practitioner of thirty-five years? I will only add that these statements are not exaggerated, but the result of many years' experience and observation, so that when a young man applies to me for a cure of pain in the chest and symptoms of Dyspepsia, I feel it my first duty to inquire whether he smokes or chews Tobacco.

With very few exceptions, every drunkard is a Tobacco chewer, for the hankering for the one generally leads to the other, and step by step, sooner or later, these stimulants destroy the health—physical, moral, and intellectual.

If men would use Tobacco within reasonable limits, I think it would be practically harmless; it is the excessive use which makes Tobacco a vice; the moderate user of the weed is not harmed. If a man, after smoking twenty packages of cigarettes or twenty cigars a day, becomes insane or dies, are we to condemn Tobacco? No; the fault lies with the individual. If a young lady should eat twenty pounds (any excessive amount) of candy and die as a result, no one would condemn the candy, but only the girl for using it to excess. Legislation against the sale of candy would not be enacted.

## PALPITATION OF THE HEART, FROM TEA, COFFEE AND TOBACCO.

Prof. W. Parker, of the New York College of Physicians and Surgeons, at a recent Clinical lecture, examined a man who was troubled with Palpitation of the Heart. The report says that no physical signs of Organic Disease of the Heart could be detected, and hence, we may conclude, says Professor Parker, "with much certainty that all the cardiac disturbance is purely functional, depending on derangement of the digestive organs, by the free use of Tobacco, Tea, and Coffee, and confinement within doors." What, then, are the indications of treatment? Shall we give Physic in such a case? Will Physic cure bad habits? Not a bit of it. Let the patient simply throw away his Tobacco, his Tea, and his Coffee; adopt a plain, wholesome diet; take regular exercise in the open air, and he will soon be well; in a word, remove the cause of derangement, and the effects will cease.

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# DELIRIUM TREMENS—MANIA A POTU.

Delirium Tremens is a peculiar disease, or condition—the result, usually, of excessive, continued intoxication, or inebriation from the use of Alcoholic liquors. It consists in a peculiar exhausted condition of the nervous system, accompanied with more or less mental disorder of a peculiar kind. Every thing about the disease is of a peculiar character, common to no other complaint. Hence, it may be easily distinguished from other diseases. It is readily enough known, however, when it appears, from or by the *cause* which produces it. True, it may be induced by the habitual and long-continued use of Opium, and perhaps by other means; but when we speak of Delirium Tremens, every body understands that peculiar and dreadful disease and ruin of the human constitution, body, and mind, caused by the continued, intemperate use of intoxicating liquors. The disease may not, and frequently does not, develop or show itself while the person continues the regular, daily use of the alcoholic beverage, but immediately on his discontinuing it, the artificial stimulant being withheld, the wreck and ruin of the nervous system is such that it gives way, and the unfortunate subject lapses into the most horrid condition of suffering imaginable, both of body and mind. At other times Delirium Tremens is the terminal act of a prolonged "spree."

The first symptoms of Delirium Tremens is a state of restless, nervous irritation, trembling of the hands, restlessness or sleeplessness at night; or, if the patient sleeps, he is haunted by awful dreams and frightful

figures, which seem to excite the greatest terror. The unfortunate victim becomes suspicious of those around him, even his best friends for fear they will do him some injury. As the disease advances and becomes developed in its worst forms, he becomes constantly haunted with feelings of dread, impending danger, and frightful objects, as serpents, snakes, wild animals, rats, and men who wish to murder him, which he fancies he sees about him, every little while, day and night, asleep or awake. He will, also, in this stage of the disease, very likely try to kill himself, by drowning, by throwing himself from an upper window, or by the use of some instrument. Hence, he will need watching, and sometimes confinement. But it is not necessary to enter into particulars in the description of this disease. It is sufficiently known and recognized wherever it occurs. As to the causes and course of conduct which lead to this dreadful disease, see and read the chapter in the forepart of this book on "Intemperance."

TREATMENT.—It is not likely that you will ever undertake (unless you are a physician) to treat a serious case of Delirium Tremens. It is a disease which, when once well established, is difficult to treat successfully, and should, by all means, be managed by a skillful physician, where that is possible. Still, it may often be the case with this as with other diseases, that a physician can not at the time be had, and that it is absolutely necessary to do something for the sufferer. Hence it is well to give you an idea of the treatment necessary and proper in such cases, so that you may, at least, manage the case until a physician can be procured. Very little medicine, so that it is of the right kind, will be required.

The immediate cause of an attack of Delirium Tremens is generally the sudden stopping or leaving off the use of Ardent Spirits by such persons as have been in the habit of drinking to excess. Where it occurs in persons while they continue to drink as usual, without any cessation or deprivation, it is apt to be of the worst character and generally beyond the hope of relief, though it may simply terminate a drinking bout or "spree," in which case recovery usually follows. But persons who, perhaps, show no signs of the disease while under the influence of the stimulant, and can have their accustomed daily allowance of liquor, may, on being suddenly deprived of it, have an attack of the disease in its worst form. It is not safe, therefore, in treating a case of this disease, to deprive the patient altogether of the use of Alcoholic Liquor. It will be necessary to give him a little every day, of Brandy or other liquor, gradually diminishing the quantity, as he can bear it. Of course, this only applies to those cases in which the patient has been a constant drinker and then suddenly stopped the use of Alcohol when it terminates a "spree." As a rule, all Alcohol should be inhibited; Tincture of Capsicum in milk will often make a good substitute, especially if associated with the suggestion that "the milk contains something."

The circumstances of the case, and the habits of the patient, should be taken into account in determining as to the quantity. From two to four ounces, or at most, half a pint, in twenty-four hours, will be sufficient, in the worst cases, which can be gradually diminished each day, until an ounce a day may be sufficient. When the quantity has been reduced to the smallest allowance, it can be strengthened some by the addition of a little Tincture of Capsicum, thus making it more stimulating and also changing the character of the stimulant. In this way you may be able to gradually wean off the patient from the use of Alcoholic drinks, and use nothing but the Capsicum, in the form of tea, or the tincture diluted with water.

As to medicine, the main thing in a fit of Delirium Tremens, and to relieve the more aggravated symptoms, are Bromides and Chloral. The patient is to take large doses of these drugs, in proportion to the severity of the disease—larger generally than a non-professional person, or one who is not a physician, will be likely to think it safe to give. Hence the propriety and necessity, indeed, of sending for a physician. To relieve urgent symptoms, and quiet the nervous system, give the patient ten grains of Chloral and ten grains each of Sodium and Potassium Bromide, and repeat in three or four hours, should it be necessary. The idea is to get the patient under the influence of these drugs as soon as you can, and keep him there for some time—more or less, perhaps for several days. Never use Opium for the treatment of Delirium Tremens, as it simply excites the patient more. Extract of Hyosycamus is also good, though milder in its operation, and acting more especially as a nervine. If you can get the Hyoscyamus, it would be well to alternate its use with the use of the Chloral and Bromides.

In this disease, the stomach and liver are generally in a bad condition, while the whole system, indeed, is full of poison. After a day or two, when the patient's nervous system and the more urgent symptoms have been sufficiently quieted, an Emetic should be given, composed of equal parts of Lobelia and Ipecac. It should be given in or with a portion of the same kind of liquor that the patient has been in the habit of drinking, or plain. Accompany the Emetic with some Warm Drinks or Gruel, and after the operation is over, let the patient take a little Weak Gruel or Broth.

A very good way to get the poison out of the system is by sweating it out. If convenient to do so, give the patient a Steam or Vapor Bath about twice a week, and let him take freely of Diaphoretics or Sweating Medicines. The Diaphoretic Powders will do; or, perhaps, the following would be better: Take Spirits of Camphor, Wine, or Tincture of Ipecac, Tincture of Opium, Tincture of Cayenne, and Sweet Spirits of Niter, equal parts, say 1 ounce each; mix, and give in doses of a teaspoonful once in three hours. Give also, as soon as convenient, an active Cathartic, calculated to act upon the liver, such as Calomel and Phosphate of Soda, or Epsom Salts may be used. Keep the bowels in a regular, soluble condition,

if you can, by giving once or twice a week a moderate dose of these Salts, or something similar.

Good nursing, in addition to the foregoing treatment, a mild nourishing diet, and the moderate use of Tonics, Nervines, and, perhaps, Narcotics, as Quinine, Extract Valerian and Hyosycamus, and Chloral and Bromides, together with a moderate allowance of Alcoholic Stimulant, gradually diminished, will be the character of the treatment required. If the patient raves, is furious, or likely to be dangerous to himself or others, he must be confined, or carefully watched and guarded. The watching and guarding must be constant; it may be necessary to tie the patient in bed. But if the case is at all a bad one, by all means send for a physician.

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## BACTERIOLOGY.

BACTERIOLOGY is the science which treats of germs. The modern powerful microscope and laboratory methods have shown us a previously unknown world of life. We are just beginning to learn of the wonders of Nature, which exist beyond the scope of the unaided human eye.

Bacteria are small vegetable organisms, most of which are invisible if not magnified eight hundred or more times, some requiring to be magnified twelve hundred times to be rendered distinctly visible. Whether a distinct class of still more minute organisms, which may perhaps cause some of the contageous diseases, of which the germ has not been discovered, exists, must at present remain a matter of speculation; science and mechanical ingenuity seem to have reached their limits in devising and constructing high-power magnifying instruments.

The word germ is a more general and less scientific term than bacteria; for example, the living acorn is the germ of an oak tree, while the bacteria called *bacillus tuberculosis*, is the germ of consumption; the one is a seed, the other a bacteria, but both are included under the term germ. It will be well constantly to bear in mind the analogy of bacteria and seeds, in that both require favorable surroundings for their development, and that the product of their development is the formation of many more seeds like themselves.

As I said before, the Bacteria are vegetable organisms—not little animals—though some of them possess the power of independent motion; however, this power is not alone possessed by some of the microscopic plants, some of the larger flora also possess it. Bacteria are classified in a great number of ways; according to shape, as *bacilli* (little rods); as *cocci*, (little dots); as *spirilla* (little spirals); according to their grouping, in pairs, as *diplococci* or *diplobacilli*, or in chains of three or more, as *streptococci* or *streptobacilli*, etc.; according to their mode of life; as *parasitus*, requiring a living body as a soil for their growth; as *saphro-*

*cites*, not requiring a living body to develop in; and finally those which can develop in either living or dead matter. The foregoing are a few examples of the methods of classifying bacteria; such classifications are necessary in order to identify the different species; for example, given some bacteria, their shape, relations to each other, and mode of life being determined, in addition to numerous other facts, which lack of space prevents my describing, the particular species is readily determined.

Not only are there the harmful diseases causing bacteria, but there are also a large group of them, which play an important part in Nature's economy, and are in all probability essential to our existence, indirectly supplying us with our food, *i. e.*, breaking up and arranging the chemical elements, so that we can assimilate them, or at least arranging these necessary elements so that they may be assimilated by the plants and animals which we depend upon for our food.

Bacteria, like all other living matter, during their development, growth, and multiplication, take up food and give off waste products. The organisms which cause disease (called pathogenic organisms), almost without exception, produce the symptoms of the disease, not so much by their direct presence, as by the waste products which they eliminate. These waste products are called *Toxines*, and are usually carried to all parts of the body by the blood; the presence of these toxines in the blood, cause the tissues of the body to manufacture a counter poison — an anti toxine, which ultimately counteracts the effect of the toxine of the Bacteria. Because of the body's ability to manufacture these anti-toxines, recovery from the infectious diseases is possible. This subject now leads us to the principle of immunity; a person once having had any one of the infectious diseases, will seldom contract that disease a second time, though repeatedly exposed. We must assume that the disease caused some change in the tissues or fluids of his body, and a satisfactory theory of immunity is that the anti-toxine remains in the blood for an indefinitely long time, preventing the germs which produced it from getting a new foothold, so long as the anti-toxine is present. We are now in a position to explain how the anti-toxines — Diphtheria Anti-Toxine, for example—are obtained, and the principle of their action in disease. The *Bacteria* which causes Diphtheria, known as the *Bacillus Diphtheriæ*, is cultivated, artificially, in the laboratory as it were, in a hothouse. During its artificial growth it forms the same waste products that it does when growing in the human throat. These waste products are separated from the *Bacilli* by means of filters; they, *i. e.*, the Toxines, are injected into the blood of a perfectly healthy horse, the dose being small at first, for a large dose would kill the horse; every few days the injections are repeated, the dose being increased each time; the horse gradually becomes immune, *i. e.*, has manufactured an Anti-toxine, so that tremendous doses of the Toxine may now be injected without producing the slightest effect upon the horse. The anti-toxine is in the blood serum

of the horse, and this is withdrawn with the greatest care and cleanliness, and hermetically sealed in small glass containers, which hold the proper amount for a single dose. This, injected into the blood of a child, sick with Diphtheria, counteracts the effects of the Toxines being formed in the child, so that now the dangers of Diphtheria have been greatly diminished. The death rate previous to the introduction of Anti-Toxine was from 20 to 40 *per cent;* now it varies from 2 to 3 *per cent*, *i. e.*, in cases where Anti-Toxine is used. The principles involved in making Diphtheria Anti-Toxine, are the principles upon which all the Anti-Toxines are made. We now have *Anti-Streptococcic-Serum*, a specific in Puerperal Fever and Erysipelas, *Anti-Tetanic-Serum*, a specific for *Tetanus* (Lockjaw), and some few others, including some for the infectious diseases of horses and cattle. Working along this line, we may hope soon to have specific *Anti-Toxic* serums for all of the infectious diseases, including Tuberculosis.

We now know that pus (matter) whether it be in a wound, or in a boil, carbuncle, or abscess, is caused by a class of germs called pus-forming or *pyogenic* germs. They exist everywhere; in the air, in dirt, and even in the skin; and the object in the treating of all wounds must be toward preventing the admission of these germs to the wound, by the free use of clean soap, water, and scrubbing-brush, and dressing the wound with clean cloths, anti-septics, and cotton; the latter is a difficult material for germs to penetrate. When pus has once formed, it is evident that the germs have already gained access to the part, and the treatment must be directed towards their destruction, by means of anti-septics, such as weak solutions of Bichloride of Mercury, Alcohol, Carbolic Acid, etc.

The germs of the following infectious diseases have been discovered: Tuberculosis, Typhoid Fever, Tetanus, Erysipelas, Cholera, Bubonic Plague, Diphtheria, Puerperal Fever, and some others. During epidemics of these diseases, these germs are everywhere present, and no doubt everybody takes a greater or lesser number of them into the systems, but only those who are below par—exhausted mentally or physically—furnish suitable soil for the development of the germ, and have the disease. We cannot have the disease without the germ, but we may have the germ without the disease. The *Bacillus Tuberculosis* is a germ which can retain its vitality for a long time in a dried condition in dust, outside of the human body. Everyone who has Pulmonary Tuberculosis expectorates large numbers of these bacilli, so that they are widely disseminated; hence the necessity of destroying the sputum of such people by burning, and the passing of anti-expectoration ordnances by our municipalities. Everybody has at some time in his life taken into his system the Bacillus Tuberculosis, but the germ develops only in those who furnish a suitable soil, *i. e.*, an inherited or transient lowered resistance to the invasions of this germ.

Inasmuch as all the infectious diseases are caused by germs, and people suffering from these diseases are giving off from the skin, by exhalations,

or excretions, large numbers of the germs, the necessity for strict quarantine and careful destruction of all excretions is evident. Though quarantine may inconvenience individuals, yet they must give way to public necessities.

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## ELECTRICITY.

To ENTER into details upon so broad a subject as Electricity is far beyond the province of a work of this kind. I only intend to touch briefly upon its Therapeutic application.

Probably people have not been more imposed upon than by "quacks" who use Electricity as a "cure all"; as a matter of fact, the field of application of Electricity in medicine is very limited. This is, perhaps, a source of disappointment to many who had hoped much from Electricity, but it is, nevertheless, true.

There is a striking analogy between electric and nervous energy; and it is in those diseases of the Nervous System in which there is a diminished or obstructed supply of nervous energy to a part that Electricity has its most important application, being used as a substitute for nervous energy. An electric impulse conducted through a muscle causes it to contract, in much the same manner as does a nervous impulse.

In a normal, healthy body there is a continuous though gentle stream of nervous energy constantly being supplied to every part of the body, particularly to the muscular system; if, as a result of disease, any part of the body is cut off from this supply of energy, nutritional disturbances occur, shrivelling of the part results, called Atrophy, and there is a decided tendency to the formation of Ulcers. This occurs in various forms of Paralysis, and in diseases of the spinal cord associated with Paralysis. It is in just these diseases that Electricity, when properly applied, is of value.

Two forms of Electricity are used — the current of High Potential and the current of Low Potential; the former produced by passing a current of low potential through an induction coil; the latter being the ordinary current as generated by a galvanic cell. The high potential current much more resembles nervous energy than does the direct battery current; so that this is the form used where the parts do not receive their normal nervous supply. It is a poor substitute for nature's original plan, but is undoubtedly of value, in conjunction with massage of the parts. In certain cases of Neuritis, the galvanic current is used.

Electricity is also used to destroy Superfluous Hair, Warts, Moles, Small Nævi, and other growths. For this purpose the electrodes are composed of needles, which are thrust into the hair follicle or growth. Decomposition of the part occurs by the action of Electrolysis. For growths, a number of applications are usually required, of course, depending upon the size of the growth.

Electric Belts and Electricity as a tonic, are catchy instruments and cant phrases of "quacks," reputed cures being a result of false or incorrect diagnosis, or of natural agencies acting independently of the Electric Belt. There never was a case of true Kidney Disease cured by Electric Belts.

Electric Instruments have a certain field of application, especially those in which the cutting instrument can be heated to white heat as it is passing through the tissues, thus searing the mouths of severed blood-vessels and preventing Hemorrhage. The Electric Light is also valuable, and is now made so small, and yet so powerful, and is so mounted, that it can be introduced into various cavities so that a perfect view of the interior can be obtained; such an instrument has been made, and is in successful use, for examining the male or female bladder, being introduced through the natural passage. The ingenuity of the instrument-maker along these lines seems to be unlimited. The Electric Current is also used in Dentistry, to prevent pain during the operation of filling teeth. The high potential current is used on the Electric execution chairs, death being almost instantaneous.

We must not leave the subject of Electricity without speaking of the X-Rays, for their applications in Surgery and Dentistry are extensive. These rays, which correspond to the extreme blue end of the Solar Spectrum, have the power of rendering all but metallic and earthy substances transparent, and are generated by an electric current of extremely high potential being passed through a vacuum. The vacuum is secured by means of a glass bulb, from which the air is withdrawn by means of an air-pump. The light emanating from such a bulb, while the high potential current is passing through it, is of an intense, ghastly-green phosphorescent character. By means of the Fluoroscope, invented by Mr. Edison, the bones of the hand may at once be seen upon exposure to this light; or, by means of the Photographic Plate, a permanent picture may be obtained. The soft parts being transparent to these rays, and the bones not being so, this makes a perfect means for studying obscure fractures and dislocations. The X-Rays are invaluable in locating exactly foreign bodies of a metallic or earthy substance, whether it be a piece of a needle in the hand or a marble swallowed and in the stomach.

The light from an X-Ray tube is used for the cure of Lupus (Cutaneous Tuberculosis) and early superficial Cancerous growths; in some such cases there seems to be a decidedly favorable action, even to complete cure.

In the early work done with the X-Rays, serious burns often occurred as a result of the necessarily long exposures; this difficulty has been overcome and pictures through the thickest parts are now secured in a few seconds.

# HYPNOTISM—ANIMAL MAGNETISM.

Hypnotism or Animal Magnetism has, for some years, amused and bewildered the lovers of the marvelous. Ridiculed, as a mere illusion, or delusion, it has, nevertheless, perplexed the scientific; its effects are too palpable to be denied; but any rational solution of the cause or causes in which they have originated has hitherto eluded detection.

The honor of unveiling the mystery was reserved for Mr. James Braid, an eminent surgeon in Manchester, who, having witnessed the recent experiments of Mons. Lafontain, in the Athenæum of that town, determined, if possible, to bring the system to the test of physiological and anatomical principles. This gentleman, having satisfied his own mind that he could produce the phenomena without personal contact, and even induce sleep, when in a different room from the person to be thrown into a state of somnolency, announced a public lecture on the subject, which he delivered at Manchester Athenæum, before seven hundred persons.

Mr. Braid first placed on the table a common black wine bottle, in the mouth of which was a cork, having a plated top. The individual on whom the experiment was to be performed was seated in a chair, and directed to gaze intently at the cork, without winking or averting the eyes. The cork was about two feet from the person operated upon, whose head inclined backward, forming with the object an angle of forty-five degrees. In this position he remained for about five minutes, when profound sleep was produced. The second experiment was completed in the same time. In the third case, a bandage was placed round the head, for the purpose of retaining, in an immovable position, a common cork, a little above the roof of the nose, as the object to be gazed at, and in about four minutes a complete state of somnolency, or sleep, ensued. In this case was proved the inability of the patient to open the eyelids, although consciousness was, in no respect, suspended, as he was able to reply distinctly to any question. The fourth experiment failed, either through the noise that prevailed or owing to the person not fixing his gaze continuously on the object. The fifth was successful. Although the party made a desperate effort to open his eyes, so much as to agitate his whole frame, they remained as though hermetically sealed. When Mr. Braid took from his pocket a wooden ruler, and drew the end of it gently over the upper eyelids of both eyes, the spell was broken, and the sense of sight restored with perfect ease. These experiments fully demonstrate that the phenomena were perfectly independent of Animal Magnetism, as in no instance was there the least approach to personal contact or manipulation.

Having thus convinced the audience that sleep could be produced without pressure of the thumbs, or waving of the hands, as employed by Mons. Lafontain, Mr. Braid proceeded to explain the *rationale* of his discovery.

The artificial mode of producing sleep is to fatigue the rectus and levator muscle of the eye, which is affected by being continuously strained, and by an intent gaze at an object viewed under an acute angle. Under such circumstances, the irritability of those muscles becomes exhausted, as well as the irritability of the optic nerve; giddiness causes a mist to rise up before the eye, and sleep ensues. Congestion is induced in the eyes—is carried from them to the optic and muscular nerves of the eye, and owing to their proximity to the organ of the nerves of respiration and circulation, affects them through sympathy, and enfeebles the action of the heart and lungs. The heart, thus acting feebly, is unable to propel the blood with sufficient force to the extremities, and hence their coldness. The blood, consequently, is accumulated in the region of the heart, and it is thus stimulated; and, in order to remove the inordinate load, it is compelled to increase the frequency of its contractions, in order to compensate for the feebleness of its efforts. The brain, head, and face, now become congested in consequence, the varied phenomena resulting from irregularity in the circulation of that important organ, the brain, follow. The inability to raise the upper eyelid, Mr. Braid accounts for on the principle of temporary paralysis of the levator muscles, owing to excessive and long continued exertion at the commencement of the operation.

This is a sober and rational view of the wonderful phenomena of Animal Magnetism, by a gentleman of undoubted scientific attainments. As stated in the preface, "it makes no pretension to a full and systematic treatment of the vast subject. Its only object is to convince the reader that there exists, in Nature, a multitude of most valuable and interesting facts, which, in spite of their appearing strange or incredible at first sight, are true, and, being so, demand and deserve the most patient and complete investigation."

The author concludes his interesting work by saying:

"I am quite content that any theoretical suggestions I have made should be thrown aside as quite unimportant, provided only the facts be attended to; because I consider it too early for a comprehensive theory, and because I believe that the facts are as yet but very partially known. But I think we may regard it as established, 1st. That one individual may exercise a certain influence on another, even at a distance. 2d. That one individual may acquire a control over the motions, sensations, memory, emotions, and volition of another, both by suggestion in the conscious, impressible state, and in the hypnotic sleep, with or without suggestion. 3d. That the magnetic sleep is a very peculiar state. 4th. That in this state the subject often possesses a new power of perception, the nature of which is unknown, but by means of which he can see objects or persons, near or distant, without the use of the external organs of vision. It is only by studying the characters of this influence as we should those of any other, such as Electricity or Light, that we can hope to throw light on these obscure subjects.

Let us, in the meantime, observe and accumulate facts; and whether we succeed or not in tracing these to their true causes, the facts, if well observed, and faithfully recorded, will remain, and, in a more advanced state of Science, will lead to a true and more comprehensive theory."

We are all groping among mysteries and wonders. Besides, one soul may have a decided influence upon another, merely by means of its silent presence, of which I could relate many instances. It has often happened to me, that when I have been walking with an acquaintance, and have had a living image of something in my mind, he has at once begun to speak of that very thing. I have also known a man who, without saying a word, could suddenly silence a party engaged in cheerful conversation by the mere power of his mind. Nay, he could also introduce a tone which would make everybody feel uncomfortable. We all have something of electrical and magnetic forces within us, and we put forth, like the magnet itself, an attractive or repulsive power, accordingly as we come in contact with something similar or dissimilar. It is possible, nay, very probable, to find ourselves frequently affected, and a feeling comes over us when, at the first sight of an object, love is produced, which can never be eradicated from the mind, and we feel an uneasy sensation until we become acquainted with the persons who, at first sight, so mysteriously affected us. What anguish has been produced by the fear of never again beholding them! The eye is the mirror of the soul, and the effect of sympathy is a great mystery. How quick, when two lovers meet, does the magnetic power begin to work! One feels the proximity of the other. They are involuntarily attracted toward each other, and it is not long before this magnetic influence is felt. With lovers, this magnetic, power is particularly strong, and acts even at a distance. In my younger days I have experienced cases enough, when, during solitary walks, I have felt great desire for the company of a beloved girl, and have thought of her till she has really come to meet me. "I was so restless in my room," she said, "that I could not help coming here."

The powerful influence the mind exercises over the body is far greater than we can possibly imagine. See the force of imagination: Buckland, the distinguished geologist, one day gave a dinner, after dissecting a Mississippi alligator, having asked a good many of the most distinguished of his classes to dine with him. His house and all his establishment were in good style and taste. His guests congregated. The dinner table looked splendidly, with glass, china, and plate; the meal commenced with excellent soup. "How do you like the soup?" asked the Doctor, after having finished his own plate, addressing a famous gourmand of the day. "Very good, indeed," answered the other; "turtle, is it not? I only ask because I do not find any green fat." The Doctor shook his head. "I think it has somewhat of a musky taste," said another; "not unpleasant, but peculiar." "All alligators have," replied Buckland; "the cayman peculiarly so. The

fellow whom I dissected this morning, and whom you have been eating ——" There was a general rout of the whole guests. Every one turned pale. Half a dozen started from the table. Two or three ran out of the room, and only those who had stout stomachs remained to the close of an excellent entertainment. "See what imagination does," said Buckland. "If I had told them it was turtle, or terrapin, or bird's-nest soup, salt water amphibia, or fresh, or the gluten of a fish from the maw of a sea bird, they would have pronounced it excellent, and their digestion been none the worse. Such is prejudice. "But was it really an alligator?" asked a lady. "As good a calf's head as ever wore a coronet," answered Buckland.

This science originated with Mesmer, in the year 1772. So much of interest has lately been excited by Animal Magnetism, that I have thought it advisable to present my readers with this brief description of its phenomena, and the principal means used to produce the effects—such as touching and stroking with the hands, breathing on a person, fixing the eyes upon him, etc. The hypnotized person must always be of a weaker constitution, and, if possible, of a different sex from the hypnotizer; and it is indispensable that he should be of a disposition to believe without doubting. The phenomena themselves consist partly in bodily sensation (for instance, chilliness, heaviness, flying pains, oppression, etc.); partly in a diminished activity of the external senses; partly in fainting; convulsions; sleep, with lively dreams, in which the hypnotized person is transported to higher spheres; observes the internal organization of his own body, etc.; and, when awakened, is totally unconscious of what he has experienced. The hypnotized person shows a remarkable connection with, and dependence on, the hypnotizer—tasting what he eats, smelling what he holds before his nose, and no one else can bring him back from the hypnotic state.

We now proceed to give an outline of the phenomena of hypnotism, as usually exhibited in the hypnotizer and the hypnotized.

The Hypnotizer.—He is generally capable of producing a positive effect only so far as he possesses a higher degree of energy and vital power than the person hypnotized. The man generally effects more than the woman. If the hypnotizer is the weaker person, there either takes place no apparent effect, or the effects are inverted, viz: the positive effects are apparent in him, and the negative in the person hypnotized. After a successful operation, the hypnotizer feels a general unpleasantness, a weakness in the digestive system, and, in general, a loss of power, in proportion to the susceptibility of the hypnotized subject, and the duration and frequency of the operation. If the hypnotizer, during the operation, is isolated with the hypnotized subject by electrical bodies, his loss of power is less, but the effects which he produces are stronger.

Phenomena in the Person Hypnotized.—The phenomena produced in the subject, by a positive operation, are of a double kind; either they

have reference to the general state of the body, are not then periodical, but last during the whole séance, and therefore may be considered as the general effects of hypnotism; or they have reference only to particular activities of the organization. Of the former sort are, 1st. A general awakening and strengthening of the vital powers in all parts of the body, without considerable excitement, as well in the systems of the nerves and muscles, the vascular and digestive system, as the organs of secretion. 2d. A mild excitement over the whole surface of the body, by which every irregularity and local reaction is neutralized, and the equilibrium restored. 3d. A withdrawing of the hightened vital power from the suffering organs to others. 4th. A diminution or total suppression of the excitement producing the morbid activity of the nerves. The hypnotizer not only should have a stronger body than the person hypnotized, but also a perfectly healthy one. He must have attained the maturity of his bodily powers, but ought still to be within the age of active life; the mind, too, must be sound and strong, in order to master the affections and passions, to have a living faith and a firm will, and thus to attain perfect control over this means of cure, as also over the patient.

The phenomena of Hypnotism have been divided into a number of arbitrary degrees. Those of the first degree are generally the following: A feeling of a strong current from the head to the extremities; after which a higher degree of heat follows, easily observable by the thermometer; greater redness of the skin, with increased perspiration, and a feeling of ease and comfort throughout the whole body.

In the second degree, the warmth increases, and appears to the patient to diffuse itself from the stomach, as if from a central point, over the whole body. The pulse becomes generally fuller and stronger, and the breathing easier and deeper. The patient feels a heaviness in the eyelids, and an irresistible desire to close them. If he does close them, they seem to him cemented by the strongest power, and, during the remainder of the magnetic effects, it is impossible for him to open them. All the other senses, however, remain active, and their activity is oftened heightened. The patient knows, therefore, everything which is done about him, though he is not capable of speaking. At the close of the magnetic operation, he opens his eyes by himself, or with the assistance of the hypnotizer, and feels generally strengthened and well. After this, the patient observes, sometimes, a shining appearance before his eyes, similar to repeated lightning, a pricking in the joints of the fingers and toes alternately, a heaviness and coldness in the extremities, unpleasant feelings about the region of the stomach, sickness, violent shuddering, desire to cough, etc.

The power of hypnotism or natural suggestion, vested in an irresponsible or immoral person, makes a dangerous member of society and one to be shunned.

In no field has the quack, the charlatan, reaped a richer harvest than in these comparatively unknown psychological fields. The clairvoyant, who

claims to recall the past and look into the future of the too credulous, and the professional hypnotist, are the ones who have gained great wealth by imposing on the weak and credulous.

The particular signs often accompanying the third degree are, especially, Swoons, Convulsive Tremblings, real Convulsions, and Cataleptic states. This state generally begins with all the signs of an approaching drowsiness. Repeated yawning, stretching, and heaviness of the eyelids, announce it. A deep sigh generally follows, after which the eyes close entirely, and a state begins similar to sleep, in which the patient seems to be deprived of all sensation and consciousness.

In the fourth degree, the patient awakens, not from his sleep, but within himself, and regains his consciousness; he knows himself again, yet in a changed relation to surrounding circumstances. The external senses are either closed entirely, or heir character is changed, and only the internal sense remains the same. The somnambulist (as he is called in this state), entirely awakened within himself, distinguishes with his eyes nothing but light and darkness, and not always even these, although, as is sometimes the case, the eyelids are open. The ball of the eye is either drawn up convulsively or is fixed, the pupil widened and without sensation. Next, the sense of feeling is metamorphosed into that of seeing, so that the somnambulist can distinguish by it, the outlines of things. By repeated exercise, the patient obtains this faculty in a higher degree, and what originally appeared to him indistinct becomes very clear. Persons appear to him more distinct than inanimate subjects. Hearing is likewise performed in this state very acutely, and the sense of smell becomes sometimes so acute as to distinguish the different ingredients of compound agents. Objects which the person does not regard in a healthy and natural state, have often very sensible and even dangerous effects on him when in a state of somnambulism. The vicinity of a living being, whom the patient perceives at a distance of from ten to fifteen paces, is generally very disagreeable to him. If persons whom he dislikes touch him, paleness and coldness occur in the parts touched, and convulsions are generally the consequence. Among inanimate subjects, metals have the most unpleasant effect. To the magnet the somnambulist is still more sensitive than toward other metals. Of everything which has occurred to the patient during this period, what he has perceived, thought, said, or done, he has, when awakening, either no recollection or a very faint one; but, if he is brought again into this state, he recollects everything very well.

The application of hypnotism to the cure of disease is limited in a number of ways. In the first place, the number of people endowed with this power is somewhat limited; secondly, patients susceptible to the influence are equally limited; and finally the diseases susceptible of cure by suggestion are mostly among the nervous diseases. In certain classes of these diseases suggestion and hypnotism are of value.

A few schools of hypnotism and suggestive therapeutics have been established, and there are some people who profess to cure all diseases by these means alone, which is a great mistake, for, as I said before, though useful in its field, this field is limited.

It is a mistake to think that all diseases can be cured by any one method of treatment. Osteopathists, Homœopathists, Suggestive Therapeutists, and like cults think they can cure all diseases by their special methods; as a matter of fact, their fields are limited; while the broad-minded, old school doctor, employs any or all these practices in conjunction with those assigned to him by the laity in battling diseases.

Such are the wonders of Hypnotism, of which our readers may believe much or little. The attention which the subject has attracted in Europe, is our excuse for the length of this article. The footing which it has gained, and the effects which it has produced, strikingly exemplify the power of Imagination. It would require too much space to describe all the various manipulations and other operations by which the patient is placed in the Magnetic state.

It is the province of Psychology to investigate mental, hypnotic, and allied phenomena ; to collect data upon these subjects, and from this data to deduce definite propositions and construct working laws. It is recognized that a large number of facts, more than any one person can collect are necessary, before any definite deductions can be made ; for this reason and this purpose, a society has been organized in London, with branches in this and many other countries and workers in almost every city. This body of workers is known as the "Society for Psychical Research," to whom any and all strange mental or spiritual phenomena should be reported in detail, in the hope that something tangible upon this subject may soon be learned.

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## MILK SICKNESS.

This is a peculiar disease, confined to certain districts of country in the West and South. It is called Milk Sickness, from the fact that it is generally, if not always, acquired from using the milk, butter, and cheese, which have been obtained from cows infected with some peculiar poison, which they obtained either from drinking the water or cropping the herbage in the infected districts. What this poison is, no one has yet been able to demonstrate. Some think it exists in some undiscovered vegetable or plant ; while others believe it to be a mineral poison, existing either in the water in certain localities, or in the earth, whence it rises in the form of a vapor during the night, and settles upon the grass which the cattle eat. My opinion is that the latter theory is the true one ; but then it is only an opinion, for there is nothing certain known as to the real cause. An attack of the disease is sometimes preceded for a few days by a feeling of

languor, lassitude and general weakness, with a foul tongue and very offensive breath; but it very often comes on suddenly, characterized by severe vomiting, great thirst, burning at the pit of the stomach, and obstinate costiveness. It is very difficult to cure, and often proves fatal, death being preceded, as a rule, by convulsions.

TREATMENT.— Prompt and efficient measures are required to cure this disease. The most important object to be effected is an action upon the bowels. The most obstinate constipation generally exists, and it will require the most active and powerful measures to overcome it. In the early stage of the disease it is best to give an Emetic, composed of Lobelia and Ipecac. This will have a tendency to settle the stomach for a while, so that it may retain the Cathartic medicine. There is often no better way—and none so good—to settle the stomach and allay vomiting, than to give a thorough Emetic. Next give some active quick Cathartic. There is probably nothing better than a big dose of Salts. Apply at the same time a large Mustard Plaster over the stomach, and in half an hour after giving the physic, give a powerful injection, relaxant and cathartic, composed of 1 ounce of Salts and 1 ounce of Glycerine, and add about a pint of Hot Water; as soon as cool enough, give it by means of a large syringe, and require the patient to retain it as long as possible. If this does not move the bowels within an hour after giving the physic, repeat the dose, following it with another injection. Should these measures fail after repeated trials—which they seldom do—give 5 drops of Croton Oil; repeat the dose every hour, and at the same time rub a teaspoonful of the Oil upon the abdomen, over the region of the bowels.

The bowels, when once opened, must be kept open, by occasional doses of Physic; then an attempt should be made to sweat the patient. The Vapor Bath, with proper Diaphoretics, and the use of Hot Bricks, should be employed. If you can keep the bowels open for two days, and give the patient a good sweat, you will cure your case.

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## PAINTERS' COLIC—LEAD COLIC.

THIS disease differs somewhat from other species of Colic, being more violent, the costiveness more obstinate, and attended with more or less paralysis of the bowels and muscles of the abdomen. It is generally caused by inhaling the vapors arising from the different preparations of lead, or from handling them; painters are most liable to its attacks, hence the name of Painters' Colic. It is also called Lead Colic, or *Colica Pictonum*.

The disease usually commences gradually, with pain in the stomach, which extends downward into the bowels, centering about the navel, and, in the more violent stages, shooting off thence toward the sides of the abdomen, accompanied with spasms in the muscles and intestines. There is

usually sickness at the stomach; some vomiting; thirst; anxiety; quick, contracted pulse; pallid countenance, with the most obstinate costiveness. As the pain increases, the muscles of the abdomen become contracted into knots, and very painful to the touch; the intestines seem also to be contracted, or so paralyzed that nothing will pass them. There is great danger in this disease of Inflammation of the Bowels, which soon runs into Gangrene, and destroys the patient. The patient is usually very anæmic, *i. e.*, pale, and it is evident that the blood is affected.

Treatment.—The treatment in this form of Colic, should be very similar to the Bilious form. The first thing to be done, is to relieve the pain with a quarter of a grain of Morphine, then overcome the constipation of the bowels. If there is vomiting, give medicines to allay it. Then use Sulphate of Magnesia, with Hot Fomentations to the bowels. Narcotics and Relaxants are also indicated to relieve the pain, and overcome the spasms. As a narcotic and anodyne, use the Extract of Hyoscyamus; take 20 grains, and form into six pills; give one every two hours. Aid the operation of the bowels with purgative, stimulating and relaxing injections. Apply Hot Fomentations to the bowels, and if the Physic does not operate in two or three hours, repeat. In other respects, treat the same as a severe case of Bilious Colic. It is sometimes well to put the patient into a Warm Bath, for half an hour, or even longer, in order to relax the muscular system, and overcome the spasm of the intestines. After you have got an operation of the bowels, you may give the following pills: Extract of Hyoscyamus, 40 grains; Ipecac, 20 grains; pulverized Opium, 10 grains; Podophyllin, 10 grains; make into twenty pills, and give one every three or four hours.

Five to ten grains of Iodide of Potassium may be given three times a day (after meals), to drive the lead out of the system.

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## SALIVATION—MERCURIAL DISEASE.

This disease is caused by the use of Mercury in some form or other; most usually as Calomel; and next, perhaps, in the form of Blue Pill. It is too common, and too many have had painful experience from it, to need any description than that it consists, in its primary effects, in a very sore mouth—sometimes, in bad cases, attended with looseness and falling out of the teeth, swelling of the tongue, ulceration of the throat, gums, and cheeks, and a profuse discharge of saliva. In its secondary, or constitutional effects, the bones become affected and painful, and the patient suffers more or less with what is termed Mercurial Rheumatism, and a general debility and wasting away of the flesh, or emaciation. Only carelessness can explain the excessive use of Mercury, resulting in Mercurial Poisoning, and if the use of this most valuable and necessary drug was restricted to the physician's prescription, poisoning would not occur. All the cases

of poisoning result from people employing the drug, and not knowing how properly to use it.

TREATMENT.—As soon as a person finds that he is salivated from the use of Calomel or other preparation of Mercury, he should, of course, stop taking it (if he has not already done so), and commence taking Hot Baths at night, and using a solution of Potassium Chlorate as a mouth wash. If the mouth is extremely sore and does not get well rapidly, three to five grains of Potassium Chlorate may be taken three times a day for a few days. If the pain is great, five grains of Dover's Powder may be taken at bedtime. The bowels should be opened with Salts, or some good Cathartic. The diet is necessarily liquid.

## POISON FROM THE WILD IVY.

THE poison Rhus, or Wild Ivy, commonly called Poison Vine, grows very common in some parts of the Western country, and some people are very liable to become poisoned with it, whenever it comes in contact with them. Many persons are entirely unsusceptible to its poison, and even can handle it without experiencing any evil effects from it whatever; while others are so susceptible to its influence that they will be affected by it by merely coming into its immediate vicinity, especially while the dew is on and the air moist; and, if they touch it, are sure to be poisoned. It most usually affects the hands and face, and in severe cases resembles a bad case of Erysipelas, swelling the face very much, even to the closing up of the eyes; blisters raise upon the skin, from which a thin, yellowish fluid exudes, and the patient suffers very much. It may extend to any other part of the body with which the poison is brought in contact. Cases have been known where it has disfigured the face worse than the Smallpox, partially destroyed the eyes, and even produced death.

TREATMENT.—I regard Sweet, or Olive Oil, as an antidote to this, as well as to most Vegetable and Animal Poisons. It is to be taken freely, internally, from a half to a pint or more, in a day. If the case is a bad one, let the patient take about two ounces at a time, every two hours, till at least a pint has been taken. At the same time bathe the face, hands, and parts affected, with Sweet Oil, and cover with bits of silk or thin muslin. The bowels are apt to be costive, and if the Oil does not operate within twelve hours after commencing to take it, give a dose of Salts, or a grain or two of Podophyllin, with a little Cream of Tartar. Repeat the Oil next day, and the next, if thought necessary, or until the disease and swelling begin to recede and disappear. There is no danger in the Sweet Oil; it may be taken freely, even to a quart a day, and may be relied on as an infallible remedy. A drachm of Tincture of Opium to an ounce of Dilute Lead Water makes a cooling, pleasing application to the inflamed skin, but it must not get into the mouth, nose, or eyes.

# SNAKEBITE.

The symptoms attending the bite of the venomous reptiles, as the Rattlesnake, the Moccasin, and the Copperhead, are such as not to be easily mistaken, and generally commence to exhibit themselves very soon after the bite. They are nausea and vomiting; swelling, commencing in the part bitten, and extending more or less rapidly over the whole body; full, strong, excited pulse; the eyes become bloodshot; sometimes there is bleeding from the nose, mouth, and ears; in extreme cases, a bloody sweat breaks out; great pain all through the body, and extreme suffering. These are the symptoms of a bad case. Some persons seem to be much less susceptible to the poison than others. In such the symptoms approach more gradually; and if the bite has been in the foot or hand, the swelling may not extend beyond the limb that is bitten. But the bite of the more venomous snakes, such as I have named, is always to be regarded as dangerous. The bites of the venomous snakes can be distinguished from the bites of non-venomous snakes, by the fact that the fangs of the venomous snakes are two in number, and consequently only leave two little spots side by side.

Treatment.—The first thing, if it can be done immediately after the bite, should be to draw a cord tightly around the leg or arm (if the bite has been on either), a short distance above the place bitten. The cord or ligature should be drawn tight enough to prevent the blood from circulating in the veins, which will tend to check absorption and prevent the poison from passing into the system. Then have some one suck the wound. This should be persisted in for some time. The venom of snakes does not effect the unbroken skin or mucous membrane, and is not poisonous when swallowed. The wound should, after being thoroughly sucked, be dressed with Bichloride of Mercury (a solution of one part in five thousand of water). It would also be well to open a vein near the bite, or at least below the ligature or cord, so as to let out as much of the poisoned blood as possible. This, you can readily see, is highly important. The blood which has been stopped by the ligature has, of necessity, become charged with poison by absorption; hence, if it is allowed to pass into the body, as it would do as soon as the ligature was removed, it would poison the whole circulation. Let it out if you can, but do not remove the ligature so long as the patient can bear it, unless you see that the swelling has extended above and beyond it. In that case the ligature can do no more good.

Internally, give the patient *all the Whiskey he can drink.* From a quart to a gallon should be drunk in six or eight hours. No fear need be entertained of making the patient drunk. You may fill him with Whiskey, then let him swim in it, and it will not make him drunk, so long as the poison of the snake remains in the system. It is an antidote for Snakebite, if taken freely, and may be relied on in any and all cases. It should be

drunk like water for a few hours, and continued, at short intervals, until the patient gives signs of intoxication, when the quantity should gradually be diminished, as the disease is now beginning to recede. Keep him "under the influence of liquor," however, until you are sure he is out of danger.

The patient should also take a gill of Sweet or Olive Oil, once every two hours, until four or five doses are taken. It will hasten the cure and also act on the bowels. The Oil may also be rubbed over the swollen parts of the body. As soon as the swelling begins to go down, and the patient seems to be out of danger, or past the worst, give an active purge of Salts. You may rely on Whiskey and Sweet Oil to cure any Snakebite, or the bite or sting of any reptile or insect.

Anti-venoms are now made for the bites of some snakes, but at present their price is almost prohibitive.

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## ANTIDOTES TO POISONS.

It is very important to know what to do in case of swallowing Poison, as such accidents frequently occur, and may happen at any time. Thousands of persons die annually from Poisoning and other causes, who might be saved by the timely application of some simple remedy or antidote, if only known and properly used. There are various antidotes for Poison, and different Poisons frequently require different antidotes; but there is one simple and very common article to be found in almost every house in the land, which, as an antidote or remedy in case of swallowing Poison of any kind, should stand at the head of the list of remedies. It is nothing more or less than ground or powdered Mustard Seed. It is to be used as an emetic, and is preferable to other emetics, on account of its being instantaneous in its effects, and also, especially in cases of Narcotic Poisons, more certain. It should be used immediately, however, or as soon as possible after the Poison has been taken into the stomach—before it has had time to become absorbed, or to produce its specific injurious effects. The way to use it is to mix a tablespoonful of the Mustard with a tumblerful of Warm Water, and swallow it immediately. It acts as an instantaneous emetic, frees the stomach of its contents, and can be used with safety in any and all cases. Every family should—as most families do—keep a supply of good Mustard always on hand. In case of taking Poison into the stomach—whether it be vegetable, mineral, or animal—the Mustard remedy should be first used; after that, other remedies, such as are indicated by the particular Poison.

I will now give you the names of the ordinary or most common poisons to be met with, and their best antidotes—such as are most readily obtained, and that may be used freely and with safety.

ARSENIC (*Including White, Yellow, and Red Arsenic; Paris Green; Fowler's Solution, and all Arsenical Preparations*).—Remedies: Give freely of Warm Water and Warm New Milk; an Emetic of Sulphate of Zinc (White Vitriol), about a teaspoonful, in a little Warm Water, equal parts of Red Oxide of Iron and Carbonate of Magnesia, mixed with Warm Water, giving freely; or scrape the rust from old Iron, mix with Warm Water, and give freely. Give Gruel and Flax-seed Tea; and injections of Gruel or Starch. A mixture of Sweet Milk, Lime-water, and the whites of Eggs, taken freely, is also good. Hydrated Peroxide of Iron is the specific antidote to Arsenic, in tablespoonful doses, every 5 or 10 minutes.

ANTIMONY (*Tartar-Emetic*).—Remedies: Tannic Acid; or a strong decoction of Green Tea; or of Oak Bark; or decoction or powder of Peruvian Bark. It will not be necessary to give the Mustard, or any other Emetic, as the Antimony will produce sufficient vomiting. Promote vomiting by giving freely of Warm Water and Sugar, Warm Tea, and the like; and as soon as the vomiting has subsided, give a grain of Opium or 30 or 40 drops of Laudanum, in a little sweetened Warm Water, and repeat two or three times every half hour.

MERCURY (*Corrosive Sublimate; Calomel; Red Precipitate; Vermilion Red, etc.*).—Remedies: A strong solution of Saleratus, in Warm Water, and the whites of Eggs—*followed* with a prompt Emetic of Mustard. Then give freely of whites of Eggs; Fresh Milk; Flour and Water mixed pretty thick; Flax-seed Tea; Saleratus Water, or weak Lye.

STRYCHNINE (*Nux Vomica or Dog-button*).—Remedies: Quick emetic —Mustard the best. At the same time and afterward, give freely of Camphor; the Tincture or Spirits of Camphor, if you have not the Gum. Twenty grains of Camphor in powder given at a time, and repeated three or four times at intervals of 15 or 20 minutes. Administer Chloroform. Use injections containing ten to twenty grains of Chloral.

OXALIC ACID.—Remedies: Give freely of powdered Chalk and Water, or Magnesia and Water; also a mixture of Lime-water, and any Oil that may be handy. Afterward, give an active Cathartic.

PRUSSIC ACID.—Remedies: It is seldom possible to afford any relief in case Prussic Acid has been taken. The antidotes recommended are, to inject into the stomach Chlorine; also the Oxide of Iron (for the person will not be able to swallow); and apply Cold Affusions to the spine; also Electricity. Cobaltous Nitrate, given freely, is a specific, if it can be obtained.

NITRIC AND SULPHURIC ACIDS (*Aqua Fortis and Oil of Vitriol*).—Remedies: Give freely of Calcined Magnesia in a little Water; or Chalk; strong Soap and Water is an efficient remedy, and is always on hand; also an Emetic. If nothing is better at hand, give freely of Wood-ashes and Sweet Milk. *Alkalies* are the remedies. When Sulphuric Acid has been taken, the use of much Water will be improper. Lime-water may be given.

COPPER (*Blue Vitriol, or Blue Stone; Verdigris, etc.*).—Remedies: The whites of Eggs to be taken freely, mixed with a little Water—take as much of the white of an Egg every two or three minutes until a dozen or so are taken; also Prussian Blue; very strong Coffee; Vinegar; strong decoction of Oak Bark, or Peruvian Bark; Saleratus Water. Give freely of Sweet Milk, Warm Water, and an Emetic.

NITRATE OF SILVER (*Lunar Caustic*).—Remedies: Give freely of Salt and Water; and afterward Milk, and Sweet or Castor Oil.

ALKALIES (*Caustic Potash, Ammonia, Lime, etc.*).—Remedies: Give freely of Vinegar, and Vegetable Acids; and follow with Flax-seed Tea, Milk, and Sweet Oil, Lard, or Lard Oil.

LEAD (*Sugar of Lead, Red Lead, etc.*).—Remedies: Epsom or Glauber's Salts, or Plaster of Paris, Magnesia; an Emetic of Mustard.

OPIUM (*Laudanum, Morphine, etc.*).—Remedies: A prompt Emetic; then give very strong Coffee; strong Tea; Tincture of Nut-galls. If patient cannot swallow, the Stomach-pump must be used, and the stomach washed out and cleaned until free from the smell of Opium. An Emetic of Sulphate of Zinc should be given. *Motion* is very essential; the patient should be forced to *walk*, assisted by two persons, and *kept awake*. Atropine in $\frac{1}{100}$ grain doses, or Tincture of Belladonna in 20 drop doses.

OTHER NARCOTIC POISONS (*Bane Berries, Wild Parsley, Nightshade, Poison Hemlock, Jimson Weed, etc.*).—Remedies: Give Mustard Emetic, large draughts of fresh Milk, plenty of Sweet Oil, strong Coffee; dash cold Water in the face, and over the chest; apply Mustard poultices, and keep the patient awake and *walking* as much as possible. For Belladonna poisoning, give Pilocarpine in $\frac{1}{8}$ grain doses.

CANTHARIDES (*Spanish Flies*).—Remedies: Large doses of Sweet Oil; also Tincture of Spirits of Camphor; Sweet Milk; and injections of Starch Water and Camphor Water, or Spirits. Drink freely of Flax-seed Tea.

CARBOLIC ACID.—Remedies: Alcohol is a specific antidote for Carbolic Acid poisoning. It should be given somewhat diluted, or as Brandy or Whiskey, as soon as possible. Magnesium Sulphate (Epsom Salts) should be given if Alcohol is not at hand.

As a general rule, after poisons that cause vomiting, pain in the stomach and bowels, and purging, give Chalk, Magnesia, fresh Milk, the whites of Eggs (raw), Sweet Oil, or if not that, any other Oil that is handy, as Lard, Castor, or Linseed; Butter, Warm Water, and the like. After Acid poisons, give Alkalies, as Saleratus, weak Lye, Lime-water, and the like. After poisons that produce sleepiness, delirium, or raving, give Emetics and Stimulants, such as Camphor and strong Coffee, and keep the patient awake. When you don't know what to give—not knowing what the poison is—give Magnesia or Chalk, Charcoal, and Red Oxide of Iron, equal parts, mixed in Warm Water; also, plenty of Sweet Oil. Always remember that Sweet or Olive Oil is an antidote to all Vegetable and Animal Poisons, as well as to most Mineral Poisons. Give it freely.

# HEALTH OF CITIES.

As a general rule, when the body is examined after death, whether of a child or adult, one or more organs are found in a state of disease; a fact which induced a physician to state that he looked upon every adult he met in the streets of London as a walking museum of morbid anatomy. Out of forty-nine thousand and eighty-nine people who died in London in the year 1840, twenty-two thousand two hundred and seventy-five were carried off before they reached the fifteenth year, and only two thousand two hundred and forty-one died of old age, which Boerhaave stated to be the only disease natural to man. In addition to this, it must be known that out of the number of deaths thus mentioned, fourteen thousand three hundred and sixty-eight were from diseases of the organs of respiration, and the great source of these diseases was the respiration of impure air.* One grand means to prevent such diseases, is to have well ventilated houses, and to keep the air in motion; for in warm weather the air always contains a large quantity of animal and vegetable matter, in the form of the ova of infusoria, and the seeds of the lower vegetable organisms. The act of breathing, too, is a great cause of rendering the air impure. The air in the lungs is exposed to one hundred and seventy millions of cells, having a surface equal to thirty times that of the body; so that during respiration the air is deprived of oxygen, and becomes loaded with deadly carbonic acid gas, and is rendered totally unfit for a second respiration, being, in reality, no longer atmospheric air, but a poisonous gas. A second cause of the deterioration of the air, is the combustion of lamps, gas lights, candles, etc. A single candle is nearly as injurious to the air as a human being; two fourteen holed Argand burners consume as much air as eleven men. A third source of atmospheric impurity is the vapor, loaded with animal matter, given off from the lungs and the skin.

He who is much in the open air, inhales more oxygen than he who is less so. For, as a general rule, except, perhaps, for a few hours of the day in midsummer, a given volume of air—and a given volume is all we can inhale—inhaled from the open atmosphere, contains more oxygen than when inhaled in other places. But the greater the absolute amount of oxygen inhaled, the stronger the lungs are, and the more efficient they become.

The same may be said of the skin, which is always a handmaid to the lungs. The more oxygen in a given volume of air, in its application even to this great membrane, the better are its various offices or functions fulfilled, and the less liable are we to take cold.

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*The reader is referred to the careful scientific statements respecting the importance of Ventilation, etc., given in the treatise on "Sanitary and Domestic Economy," found in the back part of this volume.

Numerous other reasons may be given why our enervated population, which is so constantly suffering, directly or indirectly, should be much in the open air. The great Creator has not piled up this mixture of oxygen and nitrogen forty or fifty miles high to no purpose. It is not improved by our admixtures of carbonic acid gas, sulphurous acid gas, carbureted hydrogen gas, sulphureted hydrogen, or any other gases, except the usual proportions of oxygen and nitrogen. It is not improved by the putrid or semi-putrid particles which are exhaled from animal or vegetable bodies, whether living or dying.

The deaths by Consumption in New York, for the year 1845, amounted to sixteen thousand, and the number has increased tremendously each year since. The *Medical Journal*, alluding to the subject, expresses the opinion that nearly one-half of all cases of Consumption are produced by unnecessary exposure, by breathing the impure air of badly or imperfectly ventilated and crowded public buildings, or by sleeping in overheated or overcold apartments, also badly ventilated. This is no doubt true. It should also have added two more causes in this country—wearing tight corsets and thin shoes. Warning after warning has been given. Admonitions have been uttered from the pulpit, through the press, and by medical men; but all in vain. Corsets and thin shoes still rank too high among the fashionable requisites of the day, and, as a consequence, Coughs, Colds, and Consumptions abound.

It is a striking fact, that in this country only four out of every one hundred individuals live to the age of sixty years. In England, however, seven out of every one hundred attain that age. In England the climate is warmer and more temperate, but it is moist and damp, and has all those conditions which contribute to produce an immense amount of Consumption. The people are so confined and so closely crowded—millions live so poorly, and in such miserable habitations—that there is a far greater tendency to this waste of life than in our own country. Yet, in America, only four, while in England seven, out of every hundred reach the age of sixty years! The reason is to be found in the different education in the habits of the people. There, experience of the old is reverently regarded, and is taken as a guide. In this country, this experience is little regarded, and the young think they know so much more than their fathers, that they follow only the teachings of their own experience. The result is, they often find that they have acted foolishly, and prematurely lose their lives.

Human life in the city of New York averages twenty-five years—some years it runs up to twenty-nine or thirty; but frequently twenty-five is the range of life in that city. In Philadelphia, the average of life is said to be fifty per cent. more than in New York. The causes are multifarious. One is to be found in the structure of the houses. In that city, where it is the almost universal rule to eat in the basement, an immense amount of labor and effort is required to ascend and descend, especially on the part of the

aged. It would be an interesting task for some mathematician to compute the number of hours consumed, and the number of miles traveled in New York every day, in ascending and descending the stairs to their meals. In Philadelphia, the dining-rooms are on the level of the street. This fashion of building such large and high houses is at war with the true economy of life; but there is no knowing when cities built on stilts are to be bettered in this respect.

Another source of bad air in towns is the large quantity of decomposing animal matter left to give off its effluvia; and the difficulty there is in the renewal of the air in towns by means of the winds, on account of the vicious mode of their construction and their large size.

Certain diseases are traceable to the want of fresh air; such as Fevers, Tuberculosis, and that most fertile origin of numerous diseases, the common "Cold." In England and Wales, one hundred and twenty thousand people die annually of Consumption—the greater amount of cases being among in-door laborers; and, in the city of New York, about three thousand three hundred die of Consumption per annum—most of these being confined within doors.

One grand means of promoting health would be the construction of better ventilated houses. No living, sleeping, or working room, should contain less than one hundred and forty-four superficial feet, or be less than eight feet high. It should have one window at least open at the top, and an open fireplace to the chimney. Every building in which gas is used should have plans to carry off the products of combustion, and not allow them to escape in the room, and also to supply fresh air. Diseases that arise from want of ventilation are a scourge to society. Those who are merciful to animals, should not forget that they need plenty of fresh air likewise. This, we are sorry to say, is but little thought of.

Sanitary Science is making wonderful progress these days, keeping hand in hand with the great advances in all other scientific fields. The questions and problems of the disposal of sewage and garbage have been answered and solved. Both sewage and garbage are now being converted into most useful and valuable fertilizers, in most of our large cities. The problem of supplying our cities with pure water is being solved, by establishing immense filtering plants, through which water, secured from as pure sources as possible, is passed before being sent into the water mains for distribution.

National, State, and City governments all have their Boards of Health, bodies of men whose business is to look after the health of their respective communities, to establish quarantine, either local, state, or international, whenever there is danger from an epidemic of a dangerous, contagious disease; there are also food inspectors, meat inspectors, and milk inspectors, employed by the various governments to prevent the people from getting impure food "stuffs." It is of the utmost importance that everyone

should coöperate with these health boards in having proper laws passed and enforced. Anti-expectoration ordinances have been passed in almost every city. These ordinances should be respected and obeyed, as it is a step toward the prevention of the spread of Tuberculosis and other diseases.

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## THE CHEST AND LUNGS.

WITHOUT good air, and enough of it, of course, disease follows, and Consumption very frequently is the consequence. Surely there cannot be enough of good air in lungs that are stayed and pent up in a small, malformed chest. The great preventive of Consumption is to be found in a large chest, with free breathing. Sitting, or standing, in a stooping posture, contracts the muscles of the chest and makes it small. This is a subject of interest to all, especially among a people working in doors, over tables and benches. Those in easy circumstances, or who pursue sedentary employments, generally use their lungs but very little—breathe very little air into the chest, and thus, independently of bad positions, contract a wretchedly narrow, small chest, and lay the foundation for the loss of health and beauty. All this can be easily obviated by paying a little attention to the manner of breathing. Recollect, that the lungs are like a bladder in their structure, and can be stretched to double their ordinary size with perfect safety, giving a noble chest, and comparative immunity from Consumption. All the agent required is the common air we breathe. No obstacles should exist external to the chest, such as tight lacing, or tying it around with stays, or tight dresses, or holding the shoulders in a stooping position. On arising from the bed in the morning, you should place yourself in an erect position, your chest thrown back, and shoulders entirely off the chest. Now inhale, or suck in, all the air you can, so as to fill the chest to the bottom of it, so that no more air can be inhaled. Now hold your breath and throw your arms off behind, holding in your breath as long as you can; again inflate your chest and walk about, holding in your breath as long as possible. Repeat these long breaths as many times as you please. If done in a cold room, it is much better, because the air is heavier and denser, and will act much more powerfully in expanding the chest; always, when expanding the chest with air, throw the head back so as to elevate the breast-bone, and bend the whole bust backward from the waist. You may, in this manner, expand the chest a thousand times a day, if you please. On going out of doors into the cold air, inhale all the air you can, and hold it as long as possible. Stand or sit perfectly erect, while walking or riding through the street, along the road, in fields or gardens, and practice this mode of expanding the chest. Do not stoop forward at all, but inhale all the air you can, throwing the head and neck forward, and hold in the air as long as possible. By this exercise you will often check

a cough, or a disposition to cough. The chest may also be fully expanded while lying in bed. Exercising it in this manner, will soon make it very flexible, and very expansible, and will enlarge its capacity and the size of the lungs, so as to hold, in a few weeks, double their former quantity of air, while around your chest you will measure from one to six inches larger. The chest should be treated in this way during your whole lives. Should you become invalids from any cause, keep your chest expanded by long breaths, and continue to breathe a little cold fresh air daily, by having it drawn from out of doors, by leather or tin pipes, or in any other manner you please. While forming a fine chest, and after it is formed, great care is requisite to establish perfectly correct positions, so that the chest shall not be contracted, and all of your efforts counteracted by bad positions. If your positions are habitually bad, in spite of all you can otherwise do, the chest will be more or less contracted. The rule with you should be, and the rule of health is, to keep the bottom of the chest, the ends of the short ribs, and the lower extremity of the breast-bone, as far out from the backbone as possible. To effect this, the chest must be perfectly straight and thrown a little backward from the waist at all times. The small of the back is made flexible, but the hip joints are the points at which to stoop, either backward or forward. The joints are ball and socket joints, like a swivel in some degree. The trunk of the body may bend forward as much as you please for all useful purposes, and the chest, the whole spine and neck, be kept perfectly straight. Hence, no lady should ever make a table of her lap, either for sewing, reading, writing, or any occupation whatever. Let these, and all the works you do, be arranged upon a table before you, and that table be raised to the arm-pits, or as high as possible, so as to keep the chest straight. A little practice will make this infinitely more agreeable than to stoop; while little or no fatigue will be experienced at your occupation, compared to what is experienced while stooping, or from habitual stooping. The weight of the shoulders will thus be kept off the chest, which is one of the grand causes of fatigue from manual labor. You will entirely prevent the mark of servitude being impressed upon your person in a pair of round, stooping shoulders, and flat, contracted chest, and thus avoid Consumption; for thousands of persons have brought this disease upon themselves, by neglecting to attend to these important directions, and particularly those who were predisposed to this disease from delicate constitutions, or hereditary causes; for this disease, like Tuberculosis, *runs in families.*

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## TIGHT LACING AND ITS RESULTS.

The most mistaken and pernicious practice in the world is Tight Lacing; it distorts the "human form divine," and causes destructive organic diseases which never can be remedied, thus curtailing life and

disfiguring beauty. All the statues and paintings the Romans and Greeks have left us of Venus, the ideal model of female perfection of figure, represents her with a full, round waist, as Nature makes the most finished workmanship of her hands.

We hope this barbarous custom of murdering the fair proportions of the body will soon be heard of no more. We are certain it is getting much into disuse. There may be cases in which Lacing is required to brace the enfeebled chest and limbs, but never to the degree of the fashionable system of compressing the body into an hour glass, practiced by some young ladies, under the mistaken notion that they render themselves more beautiful, or that they may hear the marvelous exclamation, uttered by some would-be exquisite or fool, that he can span round her waist. I hesitate not to say, that of females, not one in fifty, I fear not one in five hundred, dresses sufficiently loose to suffer no ill consequences from ligature or compression.

Supposing our ladies had always been in the habit of dressing loosely, what would they say if they were compelled to lace themselves up, after the present fashion, as a punishment, and suppose that I should say, by this Tight Lacing you commit suicide? I should but speak the truth, and will show you how you accomplish it. You take several strong cords, fasten them round the waist as tight as you can bear it, and let them remain a day or two; gradually tightening the cords, until your body has the appearance of an hour glass. Your health will gradually decline, you will feel faint and languid, cannot endure work, and will have Dyspepsia, Liver Diseases, and be exceedingly troubled with nervousness. No matter, the work of death will be gradually going on, and before many months or years, Consumption will be seated, and you will die so easy a death that your parting breath will hardly be perceptible. And I have no doubt that thousands have tried this method of successfully destroying themselves in this fashionable age.

In one of the annual reports of the Registrar General, on births and deaths, the following passage occurs: "In the year 1839, thirty-one thousand and ninety English women died of Consumption. This high mortality is ascribed partly to the in-door life they lead, partly to the compression, preventing the free expansion of the chest, by costume or dress." By this report, which is not inclusive of Scotland and Ireland, it would appear that perhaps not fewer than fifteen thousand lives are annually sacrificed through the agency of one distinct error in costume—Tight Lacing.

In the United States, this folly of Fashion is carried by females to as great a hight as it is in the United Kingdom; and this, we presume, will add a few more thousands of lives to the general sacrifice. There

is no species of voluntary distortion that is productive of such disastrous consequences, in the loss of health and life, as is caused by this monstrous practice. The compression of the head among the Indians, is not usually injurious to health, however much it may add to hideousness of appearance. The compression of the female feet in China, though causing fretfulness in infancy, is not said to impair the constitutional energy. It has been left for English women to discover and introduce a practice the most deadly of all the means of personal discomfort and distortion.

The object of Tight Lacing is the same as that given for compressing the Chinese female's foot—an idea of securing beauty in form. A small waist is thought beautiful, elegant, and the perfection of figure. This idea originates in no correct perception of beauty, and is in violation of Nature. It has its foundation in caprice and ignorance. In all probability it began with some fashionable lady of the court, whose waist was admired for its handsome shape; and to have waists equally neat, all the other ladies would commence Lacing and squeezing themselves, without any regard to proportion or bulk of figure. Be this as it may, Tight Lacing has been followed as a fashion by all classes of females, from the highest to the lowest; and now it may be spoken of as a universal frenzy, ruinous to comfort and destructive of health. How it should be injurious, may be understood from the following explanations: The interior of the body consists of two cavities, one above the other. In the uppermost, termed the chest, are contained the heart and lungs. The use of the heart is to act as a force pump for sending the blood through the various channels of the body. The lungs are the organs of breathing, and contain a vast number of minute cells and tubes, into which the air is drawn at every breath. The cavity of the chest is separated from the cavity beneath by a broad muscle, called the diaphragm. In the lower cavity is the stomach and the intestines; these constituting the alimentary organs, or organs for receiving and digesting the food. Immediately over the stomach is the liver, the duty of which is to secrete the bile. Within this cavity there are some other vital organs. The whole of this beautiful apparatus for circulating the blood, inhaling and expelling air, receiving and digesting food, and otherwise keeping the animal economy in motion, may be observed to be neatly packed together, leaving no space unoccupied or to spare. Neither, however, is there any undue compression from without. We can see, at a glance, that pressure must have the effect of forcing the organs out of their proper place, and of crushing them on each other. This crushing, of course, prevents freedom of action, the heart's action is obstructed, the lungs can not freely breathe, the blood does not circulate healthily, the

stomach can not well digest, while the liver and other viscera, or organs, are put out of sorts and all of their functions deranged.

The internal parts of the body thus briefly referred to, are, as every one must know, sustained by a frame work of bones, composed of the vertebra or backbone, the shoulder and breast-bones, and the ribs. External pressure, in the first place, displaces and distorts this whole system of bones, and the frame, from its natural state; the ribs increase in the bulge or expansion from the higher to the lower affording no room for the heart and lungs in the chest, and no space beneath for the liver, stomach, and bowels. By lacing the waist tightly, the lower ribs are forced in upon the liver and stomach; and these members, to escape the torture imposed on them, press partly down upon the bowels, and partly up against the diaphragm, (or broad thin muscle, which separates the chest from the abdomen) which, in turn, presses against the heart and lungs. Although the Lacing must be relaxed at night, the repeated daily pressure gives a permanent set to the bones, until the ribs are found unchangeably distorted, tapering toward a point where they should bulge out, and bulging out where they should taper.

This alteration of shape in the ribs, is the earliest and least distortion. Other and greater calamities to the bony structure ensue. Jammed out of their natural position, the heart and lungs press upon, and make an effort to expand, or widen, the chest and shoulder bones. This effort is partly restrained by the external pressure, and there are thus two pressures contending against each other. Nature outraged has her revenge. One shoulder becomes higher than the other, and the spine is bent. Distortion is also going on beneath; very frequently one hip becomes larger than the other; the whole body is twisted. The usual mode of attack in this species of disease, (Spinal Curvature,) is as follows: After long-continued pressure upon the chest and abdomen, occasioned by Tight Lacing, the health of the individual perceptibly declines with a rapidity depending upon the previous state of the constitution. This derangement of health produces a softening of the bones, accompanied often by a derangement of the functions of the lungs, in which the heart and organs of the abdomen participate. Unless arrested in its progress, deformity will follow, producing a scene which terminates in much suffering and calamity, and, often through neglect, in premature dissolution. A very little reflection will show the reader the mode in which curvature to either side is produced. The upper part of the stays or corsets is brought close under the arms, and being tightly girt behind, they cause great pressure on the scapulæ, or shoulder blades; these, in their turn, press upon the ribs and spinal column, and by this pressure the

free use of the arms is obstructed. The various avocations of life tend to a much greater use of the right hand and arm than of the left, by which means the former are enabled to move more freely from the unnatural restraint in which they are held, whilst the latter continue comparatively motionless. This is the cause of this elevation of the right, and consequent depression of the left shoulder, so common among females in the middle and higher classes of society. The disproportion in the size of the shoulders, which is so evident, is not caused by any material enlargement of the right shoulder, in which little or no difference takes place; the disparity arises from the diminution in size of the left, occasioned by the injurious pressure and confinement to which it has been subjected. This more frequent use of the right hand and arm, which custom has rendered almost universal, combined with the injurious pressure, is productive of the general prevalence of deformities to either side of young females, especially when of delicate constitutions. By the general use of one arm and side, as already stated, and the feeble resistance offered by the other, to the confinement of stays, the left scapulæ, or shoulder blade, is forced against the ribs, and these, in turn, against the spinal column, which is thus pushed toward the right side; and in severe and long continued cases, some of the vertebræ, or bones of the spinal column, usually a part of the dorsal or backbones, are so far displaced as to be driven under the heads of the ribs on the right side, which, being bent at an acute, or less than a right angle, form a ridge, that, upon slight view, may easily be mistaken for the prominence of the true spine, more or less curved—the convex side being toward the right shoulder. In such instances, the upper dorsal, or backbone, gives way so completely as to become almost horizontal; the hips also appear exceedingly disproportioned in size, the left one being much more prominent than the right. Distortions of the ribs, shoulder and chest bones, the hip bones and spine, are the common results of long continued Tight Lacing. As these distortions are not usually very conspicuous, some may doubt their existence; but the cause of their being generally concealed from observation is the mode of fashionable dressing, in which, by means of padding, the balance of the figure is externally preserved.

Other bodily deformities, or at least unpleasant appearances, arise from Tight Lacing. Among these is the displacement of the breast, the shrinking and hardening of the nipples, and the swelling and flushing of the neck. Sometimes this reddening appearance reaches the countenance, and imparts an unwelcomely glowing tinge to the point of the nose. Thick legs and swollen feet, are also common results of this practice. The internal disorders caused by this perni-

cious custom are too numerous to mention here. From a list presented from different medical writers by Mr. Coulson, in his popular work on the *Deformities of the Spine*, we select the following complaints and diseases, all caused by Tight Lacing. Headache, Giddiness, Pains in the Eyes, Earache, Apoplexy, Bleeding at the Nose, Inability to Suckle, Scirrhus and Cancer in the Breast, Adhesion of the Lungs to the Diaphragm, Asthma, Spitting of Blood, Palpitation of the Heart, Water in the Chest, Cough, Abscesses in the Lungs, Consumption, Loss of Appetite, Squeamishness, Flatulence, or Wind, Rupture, Bad Digestion, Fistula, Jaundice, Calculi, Diseases of the Kidneys, Hysteria, and Eruptions. To these consequences are added, in respect to mothers, unhealthy, ugly children, and monstrosities, besides some other horrors, for which we refer to Mr. Coulson's *Summary*. We have also seen at post-mortem examinations, deep grooves in the liver, produced by the pressure of the ribs, which have in turn been pressed upon by tight corsets. Of course, many of the above conditions result rather indirectly from Tight Lacing.

The more common and obvious complaint of young females, subject to Tight Lacing, is derangement of appetite. The digestive organs are deprived of the due space required for the performance of their functions, the appetite for the food fails, or becomes depressed, and occasional faintness ensues. A sickly fainting feeling is also caused by the loosening of the corsets at night. As soon as the thorax or chest and the abdomen are relaxed by loss of their usual support, the blood rushes downward in consequence of less resistance to its motion, empties the vessels of the head, and thus causes diseases of the womb, and feelings of sickness, faintness, and general weakness, accompanied with lowness of spirits, which tend, in a great degree, to affect the mind. To restore and sustain Nature, the young victim of Fashion frequently has recourse to artificial stimulants to allay the unnatural craving of the stomach, and throw her into an agreeable fit of good spirits. In many instances, Cologne, and other distilled waters, are used as stimulants, instead of more stimulating materials, and habits of tippling may thus be added to the list of evils, individual and social, arising from Tight Lacing. Of the unfortunate young females, who too often fall victims to this vicious practice, the blame ought, in some cases, to fall on mothers, who are, in many instances, the guilty cause of this fault. Much anxiety exists in families about the marrying of daughters. There is a constant dread among mothers that their daughters will not get a good match, or rich husbands, and to secure this important object, they oblige them to submit to a variety of tortures, considered essential by that most senseless of all things—*Fashion*. From some poor notion, that Nature is unable to impart that degree of straightness in the person and ease in walking, which are consistent with gracefulness, the mother begins strapping up her daughter's shoulders, and binding her body with a harness of corsets

or leather belts. All this must be charitably considered to arise from ignorance. Nature has given but one law for strengthening the muscular system, and that is contained in three words—*Air*, *Exercise*, and *Diet*. To impart grace in walking, cheerful sports and recreations are chiefly desirable.* No man walks so gracefully or is so erect as the North American Indian, who roams free as the antelope from childhood. The error in civilized society, consists in first depriving Nature of the exercise she demands, and then attempting to remedy the want by artificial means. Were mothers fully instructed by previous education in this law, they would give themselves much less trouble about the carriage and figure of their daughters. In some continental countries, the folly of attempting to supersede Nature, has been long exploded. From 1760 to about 1770, it was the fashion in Berlin, and some other parts of Germany, and also in Holland a short time before, to apply corsets to children. This practice fell into disuse because children who did not wear corsets grew up straightly, while those who wore them got by it a high shoulder or a hunch. Many families might be named in which parental fondness selected the handsomest of several boys to put in corsets, and the result was, that these alone were hunched. The deformity was attributed at first to the improper mode of applying the corsets, till it was discovered that no child thus incased grew up straight, not to mention the risk of Consumption and Rupture which were likewise incurred by using them. Not aware of these consequences, or defying them, the mother, as we have said, too often compels her child to submit to a constriction of the waist. If she happen to have two daughters, one more robust than the other, she endeavors to bring the robust one to the same size as her sister by the corset apparatus. Cries and tears are alike disregarded—the poor girl is forced to submit. In one instance, within our knowledge, a mother violently beat her daughter to make her submit to this process of compression. The girl's health was ruined, and she died from the effects of Tight Lacing.

The human figure in its perfect models, has but a small hollow at the waist, nor does it swell out to enormous proportions in the lower and upper parts. It, in a word, is not shaped like a wasp. The natural female waist, according to the most perfect known model of beauty, is that of the Venus de Medici, and the figure is not small or squeezed tightly, as is often seen with waists of fifteen inches in circumference.

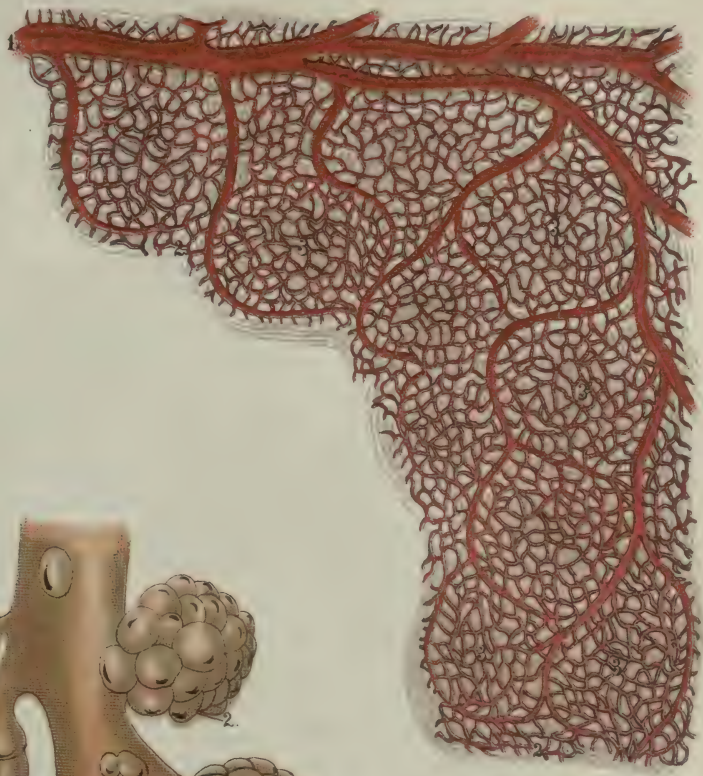
We conclude with the following observations on Corsets: Corsets are

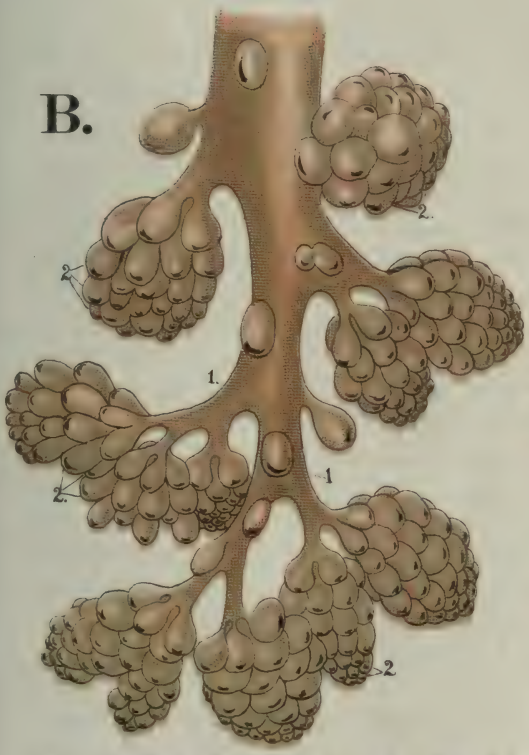
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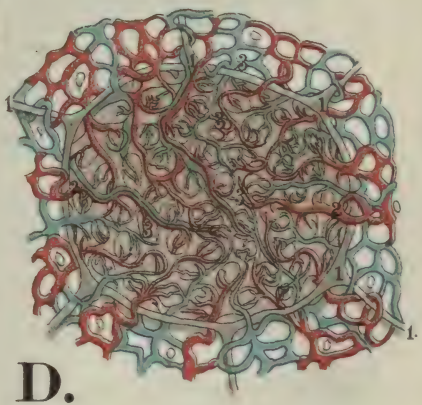
* An admirable series of exercises in free Gymnastics will be found fully delineated in the chapter on "Physical Culture," etc., contained in this work.

designed partly as under-clothing and partly to display the general outline of the figure, or, as it may be said, to give effect to the bust. These objects of their use may be gained without recourse to Tight Lacing. The Corsets should be composed of the smoothest and most elastic materials, and should be accurately adapted or fitted to the individual wearer, so that no point may receive undue pressure, and should never be drawn so tight as to interfere with perfectly free breathing, or with graceful attitudes and movements. It is obvious that such Corsets should be entirely destitute of steel and whalebone, and other barbarous inventions, by selecting a material proportioned, in its thickness and elasticity, to the size, age, etc., of the wearer, and by a proper employment of quilting and wadding, they may be made of any proper degree of stiffness. If it be then well fitted to the shape of the individual, and laced no tighter than to apply it comfortably, all the advantages of the Corset may be fully obtained. In the case of girls approaching puberty, the utmost care should be taken not to restrain the growth by Corsets, or if there be a tendency to obesity or corpulency, or a want of regularity of the Monthly Period, compression must on no account be used. So far from external pressure making a fine form, the tendency is directly the reverse, since the restraint of the Corsets interferes with the perfection of the frame The muscles being compressed and held inactive, neither acquire their due size nor strength; and a stiff, awkward carriage, with a thin, flat, ungraceful, inelegant person, is the too frequent result of such injudicious treatment. On the subject of displaying the figure, a certain degree of display of the female form is not incompatible with correctness of deportment. But there is a limit which, we believe, can not be exceeded without immediate detriment to public morals, and positive offense to delicacy. There was a time when a mode of dressing to display every personal charm was peculiar to an unfortunate class of beings, regarded as lost to all the modesty and dignity of the sex; but it is a melancholy truth, that this distinction between the lost and the reputable no longer exists in our great cities, where leaders of fashion, and celebrated beauties, claiming the highest rank and character, are most remarkable for the solicitude with which they prepare their lovely persons to be gazed at and admired in all their proportions by the passing crowd. We should not have alluded to this subject, did we not hope that a slight animadversion upon its evil tendency would help to produce a change. It has an immediate influence in lowering the sex in the estimation of men, since it lessens their regard for beings they would otherwise look upon with deep respect; and surely the fair sex have not yet to learn that modest reserve and retiring delicacy are among the most potent auxiliaries of

# ORGANS OF RESPIRATION.




**C**—Sectional view of air-cells of the lungs and their vascular reticulums. (Diagram).

1. Blood-vessel. 2. Ramifications of the blood-vessel. 3. Section through an air-cell of the lungs.

**B. B**—Minute ramifications of the wind-pipe with the air-cells of the lungs. (Much enlarged.)

1. The bronchial tubes. 2. The air-cells of the lungs.

**D**—An air-cell of the lungs and its vascular reticulum. (Greatly enlarged).

1. Wall dividing the air-cells. 2. Loop-like capillary vessels.
3. Capillary vessels, in which the process of exchange of carbonic acid and oxygen takes place, thus rendering the dark venous blood light red.

their charms. That they thus rush into the extreme we have deprecated or discouraged, appears to result merely from carelessness, and we sincerely hope that but a short period will elapse before they will strictly respect the boundaries established by good sense and good taste, around the lovely purity inherent in their sex.

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## COLD AND DAMP WEATHER.

THE principal object of clothing should be protection from cold, since it is a most positive fact, that such a degree of chilliness as produces shivering can, under no circumstances, be felt without actual injury to health; but a constant sensation of cold, even though it be so moderate as not to induce the individual to seek protection from it, or occasion any immediate distemper, exercises a benumbing influence, which the strongest constitution can not resist, and which lays the foundation of almost every chronic disease, especially Rheumatism, and Tuberculosis.

The atmospheric air contains at all times so great a portion of water, or moist vapor, that, even under the clearest sky, and in the dryest season, it abundantly prevails.

The constitution has but little power to resist the joint effects of moisture and cold, when applied to the skin; therefore, although a cold and dry air invigorates the system, warm and damp weather is far more disagreeable; yet the union of cold and moisture, as in the month of November, depresses the spirits, relaxes the body, altogether enervates the system, and is dangerous to the strongest constitution. This shows the necessity and importance of regulating your clothing according to the changes of the weather, if you wish to preserve your health, and prevent diseases which primarily originate in a Cold, and very frequently end in Consumption. The vast number of persons that Consumption sweeps from the earth is truly alarming. Nearly one-fourth of the deaths which occur within the bills of mortality are the result of this fatal malady. This deplorable fact powerfully warns us to seek and to consider its cause. A common origin of Consumption is a mere Cold, a disease too frequently made light of and neglected, until it has so rooted itself in the system as to baffle the utmost skill. Nothing is a more general or a more dangerous incentive to Cold than the neglect of due clothing, which is particularly a fault of the female sex.

In order to enjoy health and corporeal comfort, it is absolutely necessary that the body be kept at an almost uniform temperature The beneficent Creator has endowed us with senses, susceptible both

of pleasure and of pain, for the purpose of gratification and protection. As respects the body, these senses are acutely susceptible of heat and cold; and the feelings arising therefrom instinctively induce us to avoid the extreme of either. But all our artificial efforts for this purpose would be unavailing, if God had not, in His infinite wisdom, furnished us, as well as all other animals, with peculiar cutaneous and pulmonary functions, which have a power of preserving a uniform bodily heat in almost every variety of atmospheric temperature. Thus the porous texture of the skin allows the excess of heat to escape, by the exudation of the perspirable fluids, while the lungs replenish the body by inspiring and decomposing the atmosphere, whereby, under all circumstances, the internal temperature of the body is preserved at a nearly equal rate, (about ninety-eight degrees).

Perspiration has also another important and beneficial effect, as it not only regulates the heat of the body, but also carries off such matters as are not necessary or salutary to the constitution; and this excretive function is of such pre-eminent importance to health, that we ought ever to be especially careful in attending to the means which will secure its due performance; for if these matters be retained in the body, which should be ejected through the pores of the skin, they will invariably prove injurious and induce dangerous diseases. Let it, however, be remembered, that I do not here speak of that sensible, visible moisture which hot weather or active exercise produces, but of matter so subtle as to be unperceivable, a secretion which is continually passing off from every part of the body, and which has been called the insensible perspiration. The skin is the perspiratory organ; but few, probably, are aware of the magnitude of the part which, in virtue of its functions, it performs in the animal economy. With reference, therefore, to this point, we cite the following statement of Surgeon Wilson, F. R. S., the celebrated English anatomist: "To obtain an estimate of the length of the tubes of the perspiratory system of the whole surface of the body, I think that two thousand eight hundred might be taken as an average of the number of pores to the square inch, and seven hundred, consequently, of the number of inches in length. Now, the number of square inches of surface, in a man of ordinary hight and bulk, is two thousand five hundred; the number of pores, therefore, is seven million, and the number of inches of the perspiratory tube, one million seven hundred and fifty thousand, that is, one hundred and forty-five thousand feet, or forty-eight thousand yards, or nearly twenty-eight miles." Few diseases attack us while this insensible perspiration is regular; but its obstruction, or suppression, soon disorders the whole frame. It is a pre

vailing symptom in almost all diseases, and is the sole cause of many fevers and chronic complaints.

In warm weather, all the functions of the skin are generally increased, and, consequently, the danger of interrupting them is proportionately great, and hence also arise acute Fevers, Rheumatisms, Agues, and every species of disease, the commencement of which is a slight Cold, and the end a confirmed Consumption. But, besides thi excretory function, the skin, as well as every other surface of the body performs a process of absorbing, or taking up and conveying into the bloodvessels, by means of appropriate vessels, any thing with which it comes in contact, and it is also the seat of feeling or touch. To provide also for the evaporation of insensible perspiration, the skin is provided with glands, that supply an oily fluid, which renders it impervious to water, so that the material being perspired, cannot again sink into the skin. If there be a deficiency of this oily matter, the skin will soon become sodden by the excretion, re-absorption, and retention of the insensible perspiration, as is evident in the hands of washerwomen, in which the constant use of soap destroys it.

These three powers or functions of the skin are so intimately connected and dependent upon each other, that it is almost impossible for one of them to be disordered, without deranging the others. As when, because of exposure to a frosty atmosphere, in an inactive state, or being too lightly clothed, the limbs become stiff, and the skin insensible; the absorbent vessels, and those that produce the perspiration, partake of the torpor which affects the nerves of feeling, and will not recover their activity until the sensibility be completely restored.

The description of the functions of the skin must sufficiently prove the necessity of a particular attention to clothing, in a climate such as ours, where the weather is so extremely fickle and capricious. All dress and clothing should be suited to both the climate and season; therefore alterations in the apparel should be made in accordance with the sudden reduction of temperature; hence, a warmer dress will be required early in the morning, and late at night, than during the middle of the day, by all who can not or will not secure warmth by greater activity.

What can be more inconsistent than to see a delicate female with a light pair of thin slippers, on a cold, wet pavement! When I see this, I conclude she is on that journey from which none return; a few short months, at most, will tell what thin slippers and thin cloth ing have done. The feet should be strictly attended to, and shoes having a thick sole, with a thin layer of cork, or felt, placed within them, should always be worn in cold or damp weather. The invalid, or dyspeptic, or those predisposed to Consumption, ought assuredly

never to wear thin shoes. How often do we see people tramping about in the mud, with shoes soaked through; and how often do such people, when they return home, sit down by the fireside and permit their feet to dry, without either changing their stockings or shoes! Can we, then, wonder at the Coughing, Rheumatism, and Inflammation, which is the result of such imprudence? Wet feet most commonly produce affections of the throat and lungs, and when such diseases have taken place, danger is not far off; therefore, let me urge you to guard against wet feet, and admonish ladies to betake themselves to thick shoes, as a prevention of the consequences of damp or wet feet.

The common practice of changing a pair of warm worsted stockings for silk, and thick shoes or boots for a pair of thin slippers, to exhibit a pretty foot on a damp pavement, is an utterly inexcusable one. I think a fair, healthy, and ruddy countenance would be more attractive to gazers, and not so productive of dangerous consequences, as to offer up health, and not unfrequently life itself, at the shrine of Fashion.

### HOUSES SHOULD NOT BE DAMP.

The public are ill-informed, as to the requisites of a healthy residence, both as regards local position and internal construction. In all cases, we have chiefly to guard against humidity, on which account our houses should not be built in low, confined situations; neither should a house be too closely surrounded with trees and shrubs. Trees at some little distance from the house, are both an ornament and an advantage, but become injurious when so near as to overshadow it, or prevent the air from circulating freely around it, and through its various apartments. The atmosphere of a building overhung by trees, or thick shrubbery, is kept in a state of constant humidity, except in the dryest weather; and the health of the inmates rarely fails to suffer in consequence. (See the full discussion upon this and kindred matters in the Treatise on "Sanitary Economy.")

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## MANAGEMENT OF THE FEET.

THE relations of the Feet to the Body are such that the health of distant organs, and in fact of the entire system, is very liable to be affected by the treatment they receive. All know this, or ought to know it, yet civilized people, to a very great extent, neglect or abuse their Feet more than almost any other part of their bodies. In view of these facts, a few plain suggestions concerning their proper management will not be out of place.

The Feet should be thoroughly bathed every night, and it would be well to repeat the bath in the morning. The water used for bathing may be cold or tepid; though for most persons, in ordinary health, the Cold Foot Bath is preferable, because its use will be followed by prompt reaction, which is very agreeable and conduces to fortify the system against "taking cold." The severest cold may often be promptly cured by this measure alone. Even where Warm Water, with Soap, is used for cleansing the Feet, it is well to follow it by a dash of Cold Water, and then by brisk friction with a brush or coarse towel. Salt and Water may often be used with much advantage, especially after long walking. Persons subject to fetid perspiration from the Feet, will derive great relief from the use of a moderately strong solution of common Soda, as a bath, frequently. Where a genial glow of warmth does not promptly follow the Bath and Friction, in any case, a little Bay Rum, Whisky, or Cologne Water, should be applied, and the friction continued until the effect is produced.

The toe-nails should be frequently pared, but not so short as to leave a portion of the end of the toes uncovered. The corners should not be cut down, but the nail should be cut straight across; if the corners are cut off, ingrown toe-nails will result. All collections of filth beneath and around the nails should be removed at the time of bathing. As much care should be taken with the Feet as with the Hands, for cleanliness is to be observed, not merely for appearance, but as an indispensable prerequisite to health and comfort.

The clothing of the Feet should be adapted to the season and the weather. In summer, cotton or linen stockings may be worn; though silk, or fine lamb's wool, are as cool, and less likely to chafe the Feet. They should be frequently changed, as often at least as the shirt, for the Feet are subject to more rapid accumulation of cutaneous excretions than any other portion of the body.

The boots or shoes should fit closely at the instep, to prevent slipping up and down at the heel, but there should be room enough forward to save the joints from hard pressure, and the toes from being crowded one upon another. Disregard of this rule, under the influence of Fashion, or a perverted taste, is the prolific cause of Corns, Bunions, In-growth of the Nails, and other deformities and diseases. The soles of boots or shoes ought to be a little broader than the Feet; and those used out of doors should be of such thickness as not to yield readily to inequalities of the ground, nor permit cold or moisture to strike through to the Feet. Females too generally violate the dictates of common sense in this respect, and thin soles have sent thousands of them to premature graves. The interposition of in-soles, made of felt, or cork, affords much protection, where the Feet are habitually exposed to a cold or moist surface; but water-proof over-

shoes, except for a short time, are injurious. They prevent evaporation of moisture thrown out from the skin, and, if worn long at a time, cause the stockings to become damp even in dry weather, and they rapidly destroy the durability of the leather over which they are worn. Rubber should never be worn on the feet indoors.

Persons who spend the day with their Feet in snow or water, should remove the wet clothing from them on coming in at night, bathe and rub them well, and put on dry stockings and shoes. Such persons should also, if practicable, have two pairs of boots or shoes made just alike, to be worn on alternate days, for then they will have a dry pair to put on in the morning without drying them so quickly as to injure the leather. Tanners' Dubbing ought to be applied to the leather every time it becomes thoroughly wet, and that while it is yet damp. This will keep it soft and easy for the Feet, and add greatly to its durability.

When the Feet are very cold, it is much better to warm them gradually by friction and gentle heat, than to expose them at once to a hot fire. If they are frozen, they should be wrapped in snow or immersed in very cold water, in order to permit the thawing process to be produced gradually by the warmth of the blood within the body, rather than by external heat. This will be security against loss of the part by Sloughing, and also against Chilblains. Acting on this principle, the surgeon is able to freeze a part, operate upon it, and then thaw it, without leaving behind any bad effects of the frost.

To sum up all, briefly: Let common sense govern in the management of the Feet, and although proper care of them does involve some daily effort (a strong argument with lazy people), let it be borne in mind that when disease comes, it requires treatment, brings pain, and often causes partial or total loss of the use of the Feet. In this case, emphatically, "an ounce of prevention is better than a pound of cure."

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## HUMAN HAIR.

Nothing that the Creator has made can be unworthy of our investigation. Every object presents a germ of boundless knowledge to the thoughtful and inquiring mind. Even a single Hair, when carefully examined, displays the greatness of His power and the wisdom of His works. The anatomist sees, in the construction of a Hair, a beautiful, economical, and mechanical contrivance. Taking the human Hair, for example, he observes first, that, as an appendage to the skin, it partially participates in its organization.

The skin is composed of three layers. The first, or external, of which is called the cuticle or scarf-skin, which is transparent and abundantly porus; the second, rete mucosum, or a thick, mucous, cellular membrane, containing in its cells the coloring matter, which, seen through the cuticle, constitutes the color of the skin; and the third, or lowest of the series, the cutis—it is from this that the Hair springs.

Every Hair originates in a bulb, seated within the skin, which, in one newly pulled, may be seen with the naked eye. In its passage through the skin, it pierces the layers in an oblique direction, and thus assists in binding them together. Each Hair is composed of two parts—an external tube, and an internal pith. The former of these resembles the cuticle in its nature and chemical properties, and, like it, is of a white color, whatever may be the color of the Hair itself. The central portion, or pith, is that which gives to the Hair its peculiar color. It is composed of extremely delicate vessels, containing a peculiar colored fluid. In this respect it exactly resembles the mode in which the skin itself is colored. Indeed it would appear that the tube of the Hair is composed of condensed cuticle, and the pith a modification of the rete mucosum.

Each Hair is accompanied by a nerve and bloodvessels, from the latter of which the matter for the growth of the new Hair is continually deposited. In old persons, when the nervous power begins to lose its accustomed energy, the coloring matter of the Hair ceases to be secreted, and the cellular pith which contained it shriveled up, and is sometimes totally absorbed. The tube of the Hair is then seen of a transparent whiteness.

A gray head is sometimes the result of sudden terror, or grief; besides, many diseased actions of the skin will produce the same effect. In the case of terror, or grief, it is supposed that the nerve at the root of the Hair suffers a paralysis, which stops any further deposition of the coloring matter.

To the chemist, a Hair offers an interesting analysis. It has been found by Vauquelin that black Hair is composed, first, of a considerable quantity of animal matter; second, a small portion of white, thick oil; third, another oil, of a greenish color, in greater quantity than the other; fourth, of iron—that the form under which it exists is unknown; fifth, a few particles of oxyde of magnesia; sixth, the phosphate of lime; seventh, carbonate of lime, small quantity; eighth, silex, or flint, in large quantities; ninth, and lastly, a considerable portion of sulphur.

To the inquirer in Natural Theology, who looks abroad into the wide and instructive field which Natural Philosophy presents, to

objects demonstrative of the design and wisdom of the Creator, perhaps nothing is better adapted to his laudable purpose than the study of the organization and structure of this minute portion of the animal frame. He admires that infinite power of combination which, from three primitive colors, has tinted the hair of millions of different species of living creatures, each one with a color distinct and peculiar to itself. The individuality of thousands of genera is thus preserved, which, without it, would have been a scene of monotonous and inextricable confusion. Thus captivated, he looks more closely, and from a general survey proceeds to a particular examination, and new themes for admiration stimulate his industry. He notices the exquisite adaptation of Hair to the wants of the creature—the silken hair of the mole, the quills of the porcupine, the mane of the lion, the wool of the Merino and Cashmere sheep—all these he studies and asks himself, "Whence this interesting variety?" He takes a step further, and observes the difference of Hair on different parts of the same body—as, for instance, those of the mane, fetlocks, and tail of a horse—and finds, in every case, that Infinite Wisdom and Power have been engaged in providing different peculiarities for all those contingencies which would otherwise destroy the happiness of the beings to whom they are now a source of comfort and protection. He is particularly struck with the non-conducting power of Hair to heat; for it is by this that Hair is so admirably adapted for the winter clothing of animals. Enveloped in Hair, the heat of the body is effectually preserved from dissipation. It is shut in with all that certainty which, in the winter season, our furred coats and double blankets so comfortably demonstrate. Again, he is charmed with the flexibility of the Hair; in no way impeding the motions of those animals which it clothes; its strength, by which it is cleansed without the slightest fracture; its insensibility to pain; for had it been of a very sensitive nature, it must, from its exposed situation, have been a source of continual pain to the animal.

If the Hair falls off the head at an early age, it is evident that some constitutional disease exists, and not infrequently produced by excessive action of the brain, as Intense Study, great Anxiety of the Mind, Afflictions, Grief, Suppressed Evacuations, Determinations to the Head, Unnatural Heat or Inflammation, Fevers, Dyspepsia, etc.; we well know that the Hair falls off after severe Illness, Fevers, etc.

Remedies.—The Hair, if properly preserved, is one of the most beautiful ornaments among Nature's gifts, and may be retained by care and cleanliness, with soft and graceful beauty, to a very advanced age. To retain or restore the Hair requires much attention, and it is often owing to neglect that the Hair falls off. In all cases, the head should be thoroughly washed, and the scalp kept as thoroughly clean as any part of the body.

Most of the evils result from a want of proper washing and purifying the roots of the Hair with Warm Water and Castile Soap in cold weather, and Cold Water during warm weather, after which comb and rub well with a coarse towel, or hair brush, so as to restore a healthy action to the scalp and remove the scales or scurf which prevents or suppresses the perspiration. When perfectly dry, use the small-tooth comb, which will remove the impurities and produce a glossy and silky appearance. The Hair requires pure air as much as the lungs, and the roots require washing and cleansing, thereby giving life and elasticity to each Hair.

The Hair Dye, which is sold at the druggists for coloring the Hair, should be used with great caution, as many serious accidents have occurred from its use. The *Home Journal* states several remarkable cases of persons sinking into Idiocy, by the habitual use of Hair Dye; the Nitric Acid of the dye having poisoned the minute capillary cellules. Mademoiselle Mars, the great actress who charmed Napoleon Bonaparte, is represented as having been one of the known victims.

The quantity and color of the Hair are always in relation with the constitution of the individual to which it belongs, and is one of the characteristic signs of temperament. The maintenance of the vigorous growth, fineness, and glossiness of the Hair, depends on the healthy state of the body in general, and that of the skin in particular. After an attack of Fever, or of any violent disease, the Hair falls off in great quantity, and is sometimes long in being reproduced in its pristine abundance. In languid states of the system, of long duration, caused or kept up by weak digestion, associated with cold extremities and a dry, rough skin, the Hair is of feeble growth, and comes away readily with the customary combing and brushing. Whatever causes diminish the activity of the powers of life, whether physical or moral excesses of any kind, late hours, privation of sleep, anxiety and grief, will all have a prejudicial effect on the Hair. Sometimes, under the operation of one or other of these agents, it becomes prematurely gray, as happened, in the course of a single night, to the unfortunate Marie Antoinette, Queen of France.

It frequently happens that the cause which impedes the healthy and abundant growth of the Hair is local, and confined to the scalp alone. A neglect of cleanliness, by not removing the accumulation of perspired matter, which after a time forms crusts, or coating, occasionally gives rise to inflammation and sores of this part, the Hair becomes tangled and matted, and readily falls off. If you wish to avoid baldness, and preserve this natural and beautiful covering, so essential to good looks and comfort, wash the head daily with a sponge, in Tepid Water and Castile Soap; afterward, not very roughly, brush the Hair until it is thoroughly dry; then use a comb gently—a sufficiently fine one to clean the hair of matter adherent to it—and rub the surface of the scalp, from which the Hair grows, so as to cleanse it of the dandruff, or dried perspirable matter, by moderate friction, with a

brush or coarse towel. Now, if these directions are strictly attended to, all the defects of the Hair, which arise from an unhealthy or disordered state of the scalp, will often be entirely removed. What can be more beautiful than jet black Hair falling in undulating ringlets upon the shoulders and bosom of a youthful beauty? Helen, that fair but false one, who set all Greece and Asia in arms, was the one whose soft curls have been the theme of every poet.

As a rule, Hair Tonics, Hair Dyes, Greases, and Oils should not be used on the Hair. Nature has provided each hair follicle, near the root of the Hair, with a little sebaceous gland, which secretes, in a healthy scalp, a sufficient amount of sebum or oily material to keep the hair pliable and glossy. The natural sebum is a better ointment than any artificial ones we have yet been able to make, and the use of artificial oils has a tendency to cause the sebaceous glands to dry up and disappear, as if offended at the attempt to improve upon Nature's work.

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## THE TEETH—WHAT THEY SHOULD DO.

Few people know the importance of Teeth, and still fewer take proper care of them. Only when persons grow old, and find them wanting, or when they suffer from their decay, do they properly appreciate their value. It is remarkable that, while man has only one set of any other organ, during his life-time, he has two distinct sets of Teeth, and this fact may be brought up to show their great importance in the animal economy.

Man properly has thirty-two Teeth, which are fixed with great firmness in the jaws, which latter are moved by very powerful muscles—the upper and the lower rows of Teeth are pressed toward each other with considerable force during the mastication of food. By these means, the substances taken into the mouth are broken and macerated by the salivary juice, which flows from the glands of the mouth during the presence of food.

The subsequent digestion of food in the stomach depends much on its perfect mastication; if the Teeth have effectively done their work, and reduced the food to a soft mass, the gastric juice of the stomach more easily dissolves it, and blood is the more speedily and completely formed therefrom, and the body better nourished. Many people who have good Teeth suffer indigestion from neglecting properly to use them; and those who have them not, are alike afflicted from their absence. To preserve the Teeth, they should be regularly cleaned night and morning. Cleanliness, in this respect, much promotes personal elegance, and frees the breath from the disagreeable taint that would otherwise accompany it. The best Tooth-powder is a little pulverized Charcoal, or better finely powdered pumice stone, but neither of these substances should be used often as they destroy the enamel of the Teeth. Neglect of the Teeth is so common, and

the employment of improper substances as articles of diet so general, that comparatively few people have their Teeth quite sound, and many suffer the excruciating pain termed Toothache. This pain is so severe, that we should do right to regard it as a warning to take proper care of the Teeth, which are so important to the welfare of the body. Creosote, Oil of Cloves, Alcohol, Opium, and other such substances, are often employed as remedies for the Toothache. But these only aggravate the evil, by accelerating the decay, and often disordering the gums. The wisest course is to seek prevention in cleanliness, in the manner already pointed out, and by living upon simple and pure articles of diet. But when decay has taken its seat, the best remedy is to have the apertures filled with a substance which hardens therein, and thus supplies an artificial enamel, such as cement, silver, and gold.

The manner of eating demands attention in connection with the preparation of food, for we have to consider what is to be done, before the food can be quite fit to enter the stomach. Why have we cutters and grinders in our mouths? and why does a savory morsel, or even the idea of a dainty, produce a flow of saliva when the stomach is prepared for a new supply? Evidently that food may be thoroughly chewed. Several purposes are to be answered by this process. The saliva contains ingredients of value in digestion, and a certain proportion of air is to be blended with the food. It is an important office of the saliva and other fluids generated in the mouth to entangle the air in the act of chewing, while each morsel is to be reduced to small fragments, and to be formed into a pulpy ball convenient to swallow. To gulp down a meal in a hurried manner deprives the stomach of these advantages, and is unnatural to man, except when his appetite masters his reason. Hasty swallowing is always attended with some violence to the nerves about the entrance to the stomach, and the habit, therefore, irritates the heart, which is apt to produce disorder of the brain. Solid substances require to be masticated, or well chewed, in order to prepare the nerves of the gullet and stomach for that consentaneous action which renders swallowing a perfectly safe, regular, and pleasant action. Besides, those who devour their food are apt to treat the stomach as if it were a dead receptacle for all they may please to drop into it, and they swallow, in their hurry, hot food which they could not hold in their mouths without pain or inconvenience. But the stomach is, in reality, more sensitive than the palate, and immediately becomes disordered, by whatever would be too hot, cold or strong, to be comfortably detained awhile in the mouth. We should, therefore, deliberately chew our food before swallowing it, and thereby enjoy the taste and flavor of the food, or we shall be in danger not only of overloading the stomach, before the appetite is satisfied, but likewise produce Dyspepsia, and innumerable other diseases which arise from a disordered state of the stomach.

Teeth are essential to good digestion, as well as to good pronunciation, and in preventing offensive breath; then keep the Teeth clean with a stiff Brush and Powdered Charcoal, or Chalk, with about a twentieth part of Powdered Myrrh added to it, and a very little Camphor; or use the Charcoal as before directed. Thoroughly cleanse the mouth with water after every meal, because any substance that decays in contact with the Teeth produces lactic and other acids that corrode the enamel. All sweet things are instantly converted into acid by the presence of decaying animal matter, such as the fibers of meat, often detained between the Teeth. Keep the stomach in a good state, for the secretions of the mouth are generally in sympathy with the stomach. If the gum becomes spongy or detached from the necks of the Teeth, lance the gums and let them bleed freely, and gargle the mouth with a little Alum and Water, or a little Tincture of Galls. To remove Tartar from the Teeth, use the previously mentioned Tooth-powders twice a day, for an accumulation of Tartar is sure to destroy the Teeth.

Medicines, especially preparations of iron, should be taken through a glass tube, as the Teeth are liable to be injured if they come in contact with many drugs.

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## MEDICAL USES OF SALT.

Common Salt, medically called Chloride of Soda, is one of the most abundant productions of Nature—tonic, purgative, anthelmintic, and externally stimulant. It is administered in some cases of Dyspepsia and Worms; in large doses to check Hemorrhage, or Bleeding from the Stomach, Lungs, and Bowels; used as an ingredient in injections, as a fomentation in Bruises, and, dissolved in Water, as a Stimulating Bath.

As the blood normally contains about one-sixth of one per cent. of Chloride of Sodium (common salt), watery solutions of such a per cent. are now often injected into the vessels of a person who has lost much blood by Hemorrhage, with excellent results. Such treatment has saved many lives. Such a solution is readily made by adding a teaspoonful of clean common Salt to each pint of sterile water, *i. e.*, water which has been filtered and then boiled. Such treatment is also used in cases of blood poisoning and uræmia and like conditions. Plain salt water makes an excellent gargle for sore throat.

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## SHORT TREATISES.

### CHILBLAINS, OR FROST-BITE.

Chilblains are generally the result of slight frost-bite, and mostly occur on the feet and hands. They may be caused without even frost-bite, or

freezing, by exposing the parts alternately to extreme cold and heat. The parts affected have a purplish red color, and are usually somewhat swollen, attended at times, especially if there is to be a change of weather, or it is about to "moderate," with intolerable itching, and often soreness and pain. They appear usually in the spring and fall, or in the winter—during mild, damp weather.

TREATMENT.—In mild cases, washing the parts in Ice-cold Water, or with Snow, will generally be sufficient. Bathing with Spirits of Camphor and Turpentine is also good, in slight cases. Bathing the parts at night in fresh Cold Spring or Well Water will also be found serviceable.

In case a hand or foot, or any part of the body is frost-bitten or frozen, do not apply anything warm or stimulating, or bring the person near the fire, or into a warm room suddenly. The best thing to do is to rub the frost-bitten part with Snow, and continue to do so for a good while. If Snow cannot be had, bathe the part in Ice Water, as the next best thing. Avoid producing a violent reaction, whether only a limb or the whole body is frost-bitten. After natural warmth and life have been restored to the part, keep the patient for some time in a cool place—a cool bed in a cool room, and continue the application of Cold Water for some time. If Gangrene should take place, the dead flesh must be allowed to slough off, and the part must be treated as directed under the head of "Gangrene."

The so-called new school claim that this treatment is in accord with their creed, that like cures like. This, however, is incorrect. The principle is, gradually to bring back the normal warmth of the frozen part, and to do this, something just a little warmer than the frozen part is first used—such an agent is Ice Water or Melting Snow or Ice. It is, in fact, relative warmth which is being applied.

## STAMMERING.

AT A meeting of the Boston Society of Natural History, Dr. Warren stated a simple, easy, and effectual cure for Stammering, which is known to be generally a mental and not a physical defect. It is simply, at every syllable pronounced, to tap at the same time with the finger; by so doing, the most inveterate stammerer will be surprised to find that he can pronounce quite fluently, and by long and constant practice he will pronounce perfectly well. Dr. Warren said this may be explained in two ways: either by a sympathetic and consentaneous action of the nerve of voluntary motion in the finger and in those of the tongue, which is the most probable, for we know, as Dr. Gould remarked, that a stammerer, who cannot speak a sentence in the usual way, can articulate perfectly well when he introduces a rhythmical movement and sings it; or it may be that the movement of the finger distracts the attention of the individual from his speech, and allows a free action of the nerves concerned in articulation.

## FOR WEAK STOMACH AND DYSPEPSIA.

TAKE a demijohn half full of Wild Cherries, and fill with pure old Jamaica Spirits. Take half a wine-glassful twice a day. Use no Sugar, as it destroys the tonic properties of the Cherries. This preparation has accomplished wonders in restoring the sick. When you recover wonted health, let all spirits alone, and thus preserve it.

## COSTIVENESS.

THE grand remedy is a proper attention to diet; let it be moistening and laxative; such as Roasted Apples and Pears, Gruels, Broths, etc. The Bread should be of unbolted Wheat Flour, Rye Indian and Meal. Rise early, use the Shower Bath, and exercise freely. Wash the bowels with Soap and Water, and rub them well every morning, and relief will be had. Use injections or enemas in preference to drugs.

## BLISTERS.

BLISTERS occasion so much pain at best, though at the same time one of our most valuable remedies, that any plan which can be adopted to give relief, when it becomes necessary to apply them, will be of great utility to the afflicted. The following method of using them is recommended by the *London Medical Times:* "The Blistering Plaster should be spread thinly on paper or linen, not sprinkled with powdered Cantharides on the surface, but instead thereof a few drops of Olive Oil rubbed on it and allowed to remain. Used in this way, the Blister acts speedily, without causing irritation, and does not prevent the water passing from the bladder. A Blister should never be spread upon leather, because the leather, by the heat of many parts of the body, becomes dry, partially crisp, and with difficulty adheres to the skin, thereby preventing it from acting well and generally over the whole part intended to be blistered. The Blister should be spread thinly, because the outer surface is only of benefit; when it is used in a thick layer, it becomes irregular, and consequently partial in its operation. The powdered Cantharides should not be sprinkled on it, because they will not add to its efficiency, as they act but slightly on the skin, but the active principle of the Spanish Fly, being soluble in Olive Oil, affords a reason for the use of the Oil on the surface of the Blister. Dr. Robertson concludes by remarking, that everyone can make this Blister for himself, of the most common materials, at a very trifling expense, and if this be any recommendation, it will act three, four or six times, if uninjured, and the Oil gently renewed on its surface."

HOW TO RAISE A BLISTER.—Cut a piece of brown paper of the size and shape you intend to make the Blister. This, being well dampened or moistened with water, is placed over the part vesicated; then take a smoothing iron, well heated, and apply over the moistened paper. This will pro-

duce a blistered surface, almost immediately, being effected by the steam generated by the contact of the hot iron with the moistened paper. This method of Blistering, being more speedy and less painful than that commonly adopted, is now generally used in all cases where it is a matter of importance to produce a quick Blister. Blisters are strong counter irritants, and act by depleting, *i. e.*, by drawing the blood from adjacent parts.

## BLEEDING FROM THE NOSE.

The blood-vessels, which expand upon the internal surface or lining membrane of the nose, are very easily ruptured; hence an unusual determination of blood to the head will often produce Bleeding at the Nose. Some persons are much more liable to the complaint than others; and males are more subject to it than females.

Usually the blood only flows from one side of the nose, but sometimes it is discharged from both, in which case it becomes more alarming.

Causes.—Great heat, violent exertion, bending the body with the head downward, and whatever determines the blood to the head, may excite Bleeding at the Nose. It is also often caused by picking the nose. It sometimes commences without any warning; while at other times it is preceded by heaviness in the head, giddiness, flushed face, itching in the nostrils; sometimes by cold feet, and a chilly sensation all over the body. Habitual costiveness may also be regarded as a cause. It is associated with other symptoms—one of the forerunners of Typhoid Fever.

Treatment.—In all ordinary or slight cases, Cold Water freely applied to the back of the neck, the face, and snuffed up the bleeding nostril, will soon check it. Pressing externally, on the side of the nose that is bleeding, with the thumb or finger, so as to compress the ruptured vessels, and, continuing it for a quarter of an hour or so, will often stop it. It may become necessary to plug the nose, but in such a case a competent physician should be summoned, as great injury might be done by one attempting to do this without a knowledge of the structure of the nose.

In habitual or frequent Bleeding at the Nose, it will be necessary to give a brisk purgative, repeated occasionally, and make use of measures to equalize the circulation. Keep the feet warm and the head cool.

## DEAFNESS.

It is seldom that the power of Hearing, once entirely lost, can ever be restored; and not always that even partial Deafness can be cured, though it may often be relieved. Partial Deafness is frequently owing to the accumulation and hardening in the ear of the ear-wax, which may generally be remedied by dropping into the ear such articles as are calculated to soften, relax, and stimulate. For this purpose the following preparations are recommended as the best: Take Sulphuric Ether, 1 ounce, and add to

it 1 drachm pulverized Carbonate of Ammonia; let stand a few days to form a solution; if it does not all dissolve, pour off carefully the liquid from the dregs, and of this liquid drop into the ear once a day from three to six drops. The patient should lay his head upon the opposite side at the time, and remain in that position a few minutes, to allow the liquid to penetrate. This preparation is highly recommended, and, if persevered in, will, it is said, overcome almost any partial Deafness, due to hardened wax or cerumen.

All deaf persons should consult a physician who, if he cannot determine the cause of the Deafness, will refer the patient to a specialist.

Do not put hard substances into the ear, or attempt to clean it with anything more than a soft cloth, soap and water; this is all that is necessary. If a pin, bit of wood, or like articles are used to clean the ear, there is great danger of perforating the ear-drum or tympanic membrane. If a solid substance, either wax or foreign body is lodged in the ear, it should be removed by means of Warm Water forced into the ear with a syringe.

## HICCOUGH.

Hiccough, medically termed *Singultus*, is a spasmodic action or convulsive catch of the diaphragm and respiratory muscles, and may be caused by Sour Stomach, excess of Bile in the Stomach, Flatulence, Indigestible Food, Overloaded Stomach, powerful stimulants (as Cayenne Pepper and spirituous Liquors), Inflammation of the Stomach, Poisons, and the like. When it occurs in low stages of Fever, it is an unfavorable and generally fatal symptom.

Like Palpitation of the Heart, Hiccough can very often be checked by taking in a full inspiration, and then holding the breath as long as possible; a draught of Cold Water, taken without breathing, will often stop it. A lump of Sugar, melted slowly in the mouth and swallowed, will nearly always check it.

If it proceed from Flatulence, or Wind in the Stomach, give Fennel Seed Tea, or some other good carminative, as Compound Spirits of Lavender, Essence of Anise, and Sulphuric Ether, equal parts of each, in teaspoonful doses, every few minutes. If from Poison, give plenty of Sweet Oil and Fresh Milk. If from Inflammation of the Stomach or Bowels, give Castor Oil, 2 parts, and Spirits Turpentine, 1 part, in tablespoonful doses, every half hour, or hour, and apply a Mustard Draft, or cloths dipped in hot decoction of Bitter Herbs, to the stomach and abdomen. When it is Nervous, or occurs from Debility in the course of sickness or fevers, take equal parts, say ½ ounce, each, of Tincture of Musk and Tincture of Hyoscyamus, and give fifteen or twenty drops every half hour. Inhaling Chloroform will also be good. It may be necessary to completely anæsthetize the patient with Chloroform or Ether. Fomentations externally, or Mustard Drafts, will be of great service; also the Warm Bath.

## INVERTED OR INGROWN TOE NAIL.

This is a very troublesome and often painful affection. The edges or sides of the nail are disposed to turn down and grow into the flesh, giving rise to inflammation, ulceration, and often great pain and suffering.

The best remedy I have ever known for this difficulty, is to scrape with some sharp-pointed instrument, as the point of a penknife, a sort of groove or gutter in the center of the nail, lengthwise, from the root to the end. It must be scraped down near to the quick, or as thin as it can be borne. This renders the nail "weak in the back," so that it will gradually and ultimately turn up at the sides, until the edges come above and over the flesh. Continue this, as fast as the nail grows out and grows thicker, and you will eventually succeed in getting the nail into its proper shape and position.

The radical cure for Ingrown Toe Nail, is to have the entire nail removed and the root destroyed, so that it will not grow again; the operation is done under anæsthesia so that no pain is suffered. This is the only remedy which promises complete cure. Cleanliness should be carefully observed about such a nail, as this is a frequent source of blood poisoning.

## FRECKLES.

Freckles are yellowish brown spots on the skin, usually upon the exposed parts of the body, as the face, neck, hands, and arms. They usually occur upon persons of fair complexion, and sandy or red hair. Exposure to the sun also increases them. They are generally very difficult to remove, and often impossible. They consist in a deposit of pigment in the pigment layer of the skin. This deposition is aided by the action of the sun.

Various washes have been recommended and used for their removal, among which the following are probably the best:

Take Rose Water, 4 ounces; pulverized Borax, 2 drachms; mix, dissolve, and wash the parts twice a day with a little of this solution. Rain Water may be used instead of Rose Water.

The following wash is probably still better: Take Saleratus, Borax, and Gum Guaiac, each, ½ ounce, pulverized; Alcohol and Rose, or Rain Water, each, ½ pint; mix, and let stand ten days, shaking occasionally. Use as a wash twice a day.

A solution of Citric Acid, made by dissolving ½ ounce of the Acid in 1 pint of Rose or Rain Water, is also good. To be used the same as the others.

These discolored spots, are, as a rule, only troublesome from an æsthetic standpoint; in very rare cases, especially in children, a serious skin disease

starts with Freckles. Tumors of the skin form, of a cancerous nature, and death ultimately results. As I said before this is a very rare disease.

### NIGHT SWEATS

Usually result from debility, and need careful attention. They occur in Consumption, and are a symptom of that disease. These Sweats are extremely troublesome and difficult to prevent. The best remedy is Atropine, the active part of Belladonna; a hundredth of a grain taken just before retiring will prevent the difficulty, if anything will. The general condition must be attended to.

The warm Sponge Bath should be used at night, and cold sponging of the body in the morning on rising; wipe dry each time, and make use of severe friction or rubbing with a coarse, dry towel.

### CHAFING AND EXCORIATION.

Children and fat persons are all very liable to suffer from Chafing or Excoriation of the skin in certain parts, especially in warm weather. In children, the parts most liable to chafe are the inside of the thighs, behind the ears, and about the neck. In fleshy persons, in the armpits, inside of the thighs, the buttocks, and wherever there is contact and friction of the parts.

Usually, cleansing the parts well with Castile Soap and Cold Water, and anointing well with Petrolatum, will be found sufficient. The parts should also be bathed frequently with Cold Water. A solution composed of 10 grains Sulphate of Zinc, ½ a drachm (or 30 grains) of Borax, to 4 ounces of Water, will also be found good, as a wash, to be used once or twice a day. Also, sprinkle on the excoriated parts a little Boric Acid, or Powdered Magnesia.

Hardening washes, such as Alcohol or a one per cent. solution of Formalin, may be used for this purpose. Cleanliness is the important part of the preventative treatment.

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## THE SOLITARY VICE—SELF-ABUSE.

There is a vicious, degrading, and most destructive habit, destructive to both body and mind, indulged in frequently by young people of both sexes, but mostly by males, which ought to be without a name. It is by medical writers called Onanism or Masturbation; but it should properly be styled the *Solitary Vice*, a vice of the most ruinous kind, and indulged in almost exclusively when the deluded victim to the habit is "solitary and

alone." No further description need be given of it here, for it is presumed that every one who *ought* to understand what is meant, will readily be able to do so. The only object in alluding to the subject, in a work of this kind, is to put parents, and those who have the care of children, on their guard.

The vice is more common than is generally imagined, and it is as destructive as it is common. This single pernicious habit of Self-pollution, by the youth of our country, is the direct cause of more physical and mental debility, the destruction of more constitutions, the ruin of more minds, and the source of more wretchedness and misery, than any other one cause. It tends directly to weaken and destroy the force and energy of the physical system, and to impair the intellect, weaken the memory, and debase the mind; resulting often in early decrepitude, permanent nervous affections, amaurosis and blindness, fatuity, and insanity. It is worse than intemperance, worse than open lewdness, worse than all other vices, in which young or old ever do or ever can indulge; more destructive to all the best interests of humanity, in this world and the world to come; destructive to body, mind, and soul, and will, if persisted in, render existence a burden, a blank waste, and life a continued scene of wretchedness!

Parents especially, therefore, should be on their guard, to save their children from this monstrous and ruinous evil. The habit is one which is generally acquired in early life, if at all, about the time of puberty, or from twelve to sixteen. It is often acquired or first learned at school, and is taught or communicated from the older to the younger—from the guilty to the innocent. The young know not the sin, nor the evil consequences of the vice. They must be watched. Parents should note well their movements, and look closely for the symptoms. They can easily be detected. The greatest trouble is, that when parents suspect, or even know, their children are guilty of the vice, they will not, from delicacy, diffidence, or indifference, admonish or instruct them, nor take measures to break up and cure the habit. Parents are often more to blame than children for the ruin which this dreadful vice entails; for it might be prevented or broken up in its early stages, with proper and timely instruction and management; whereas, if once firmly established by long indulgence, it is almost beyond all hope of remedy.

It is, as I have said, the Solitary Vice; hence, persons who indulge in it will be disposed to solitude, and inclined to shun company and society. They will frequently be alone, and missed from the company of the family, or others with whom they are associated, which is one of the *first symptoms*. It is the most common and most unerring symptom or evidence. The victim, as the habit advances, becomes

timid and bashful, and shuns the company of the opposite sex, which is another reliable symptom. The face is apt to be pale, and often a bluish or purplish spot or streak under the eyes; while the eyes themselves look dull and languid, and the edges of the eyelids often become red and sore, or inflamed. The person can not look you steadily in the face, but will drop the eyes, or turn away from your steady look, as if guilty of something mean, which is another pretty reliable corroborative evidence.

There are various other evidences of the vice, which may readily be detected by any one who is at all expert in such things, or who has read a little on the subject. The health, for instance, soon becomes impaired; there will be general debility, a slowness of growth, weakness in the lower limbs, nervousness and unsteadiness of the hands, loss of memory, forgetfulness and inability to study or learn, a restless disposition, weak eyes and loss of sight, headache, and inability to sleep, or wakefulness. Next comes Sore Eyes, Blindness, Stupidity, Consumption, Spinal Affection, Emaciation, Involuntary Seminal Emissions, Loss of all Energy or Spirit, Insanity, and Idiocy—the hopeless ruin of both body and mind! These latter results do not always follow: nor even in a majority of cases. Yet they, or some of them, do often occur as the direct consequences of the pernicious habit; while in all cases, and in proportion to the extent of the indulgence, the general health is affected, and the mind more or less injured. On feeble constitutions the effects of the vice are more marked, and the breaking down and ruin of the general health of both body and mind occur earlier, and more rapidly, than in persons with naturally sound and robust constitutions. But no physical system, no matter how sound and robust it may be, can long withstand the vice, but must sooner or later give way and break down. Most boys have indulged in this vice at some stage of their career; the strong ones will readily conquer the habit, the weak ones will succumb, and there will be all intermediate stages, some men even persisting in this solitary indulgence after marriage—not to excess, but from time to time. The sexual power develops in youths at puberty. The testicles at this time become active and secrete the semen, which is piled up and stored in the seminal vesicles, until they become distended and then the over-flow must escape. Normally this occurs at night, accompanied sometimes with a voluptuous dream, at others without. Such discharges may occur in some normal beings as often as two or three times a week, for others once a week, or once in two weeks is normal, depending upon the activity of the testicles. Sexual intercourse is the other natural means of discharging this secretion; here two parties are necessary for the performance of the act, so that there is more of a restraining influence, and excesses are not so liable

to occur. The great danger of Masturbation is, that only one person being involved, the forces of restraint are not so strong, so that excessive indulgence is liable to occur. Excess is the key-note to vice; anything—smoking, eating, drinking, masturbation, or sexual intercourse—carried to excess becomes vicious. The essentials of the above, of course, apply to girls as well as to boys.

"But what is to be done?" says the anxious parent. "How am I to prevent or cure the difficulty?"

We answer: be on your guard; watch; look out for the "symptoms." And when you see enough to satisfy you, or even to excite suspicion, that something of the sort is going on, *take immediate measures to break it up*. It is a delicate matter for parents, especially for a father, to speak to his son about. It is different with the mother; she can more readily speak to a daughter upon subjects of that nature; and where she suspects any thing wrong of that sort with her daughter, she should. It is her bounden duty at once to speak to her about it, question her, find out the true state of the case; and, if guilty, portray to her the danger, the evil consequences, and ruin, which must result if the habit is not at once and forever abandoned. If persuasion and instruction will not do, other measures, such as will prove efficient, must be resorted to.

In case of a son, perhaps the better way will be for the services of the family physician to be engaged. If a father, or parent, suspects a son of the habit, let the fact be submitted to an influential physician, and let him take the boy in charge. There need be no delicacy or reserve on his part, and he can portray to the misguided young man the horrors and evils of the habit in their bearing, and his caution and advice will have weight.

As I have already said, the vice is a "solitary" one; it is never or rarely indulged in, except when alone; never begun after the person has arrived at mature years. Hence, if all other measures fail, there is one which does not fail, and it should be resorted to; that is, to so arrange that the person shall *never be alone*, until the habit has been entirely broken off and cured. If the youth is attending school—and that is the place (boarding schools especially) where the vice is frequently learned, and most indulged in—let him, or her, be taken from school, and be kept as much as possible in society. Resort to a change of scenery, to travel, and to new associations. If this does not prove sufficient, then arrange so that the unfortunate subject shall never be alone, neither day nor night. The remedy will be difficult, I know, but it can be done, and it is better to go to all the trouble necessary to accomplish it, rather than that the youth shall be lost and ruined. Procure a companion; one of sufficient age, intelligence, and influ-

ence who shall understand the whole matter, and whose business it shall be to be *always present*, so that wherever the "patient" goes, there the "companion" goes also, day and night. A few months of this kind of companionship and treatment will generally be sufficient to break up and cure the most confirmed case. But in most cases, especially if taken in time, in the early stages of the vice, and prompt, energetic, and intelligent measures are made use of, and especially if the aid of a good physician is secured, the habit can be overcome, and the youth saved, without resorting to such extreme and onerous measures as I have just indicated.

The subject is an important one, and one which should engage the serious attention of every parent. Few, perhaps, ever think, or ever know, how many of the unfortunate inmates of our lunatic asylums and insane hospitals have been sent there by this dreadful vice! Were the whole truth upon this subject known to the public, it would alarm parents, as well as the guilty victims of the vice, more even than the dread of the Cholera, Small-pox, or any other epidemic scourge to which our country is at times subject!

Parents, and indeed all, old and young, should inform themselves in regard to this matter. They will be astonished at the frightful effects produced by this "solitary vice;" at the constitutions ruined, the health destroyed, the diseases engendered, the physical energy wasted, and minds impaired or ruined; all traceable, directly or indirectly, to this one fruitful cause of misery and ruin. But in the absence of such information, we earnestly recommend all, parents especially, to confidentially consult a good, intelligent, and reliable physician upon the subject, and follow his directions in all cases where they may have need of his counsel and advice, in regard to the matter.

In properly treating a person subject to this vice, of course, it will be necessary to regulate the diet, and resort to more or less medical treatment, especially external remedies and applications. But, in these things, consult your physician; put the whole case in his hands, and follow his directions. By all means, where you suspect a young person under your care, or charge, of this ruinous habit, do not hesitate, but lay the case before a good physician at once.

Sometimes the habit is due to the irritation of a long, large foreskin and in such a case circumcision should be performed at once, as it will remove the source of irritation and conduce to cleanliness.

# ATROPHY—EMACIATION.

Atrophy or Emaciation, called also, *Marasmus*, is a gradual wasting away of the body or flesh, unattended by any marked symptoms or disturbance other than impaired appetite, diminution of strength, lassitude of body and mind, and a pale, languid, and sometimes bloated countenance. There are seldom any Febrile symptoms, Cough, difficulty of Breathing, Diarrhœa, Expectoration, or other discharge. The abdomen is sometimes swollen, and also the lower extremities, showing a Dropsical tendency, the bowels either costive or inactive, the urine copious and of a turbid color, the breath fetid or offensive, and the patient complains of great lassitude or weakness after a little exertion. This weakness or lassitude increases with the emaciation or wasting of the flesh. After the disease has continued for some time, there may be alternations of flushed face; a dry, hot skin at times; wakefulness or disturbed sleep; a fretful disposition, with a quick, hard, or wiry pulse. Very often, too, in children, there will be symptoms of Worms, as rubbing the nose, swelling of the upper lip, involuntary startings and grinding of the teeth during sleep, and other symptoms common in children troubled with Worms, or irritation of some kind.

Emaciation, or Marasmus, is a disease or a diseased condition which generally attacks children and young persons, though it frequently affects persons of mature age. It is often difficult to tell what is the cause of the complaint, and quite as difficult to cure it. It prevails most extensively in cities, crowded localities, and among children and young people of factories, crowded schools, and places where there is evidently a lack of pure air. No doubt, confinement in crowded places, and a lack of pure air and of outdoor exercise, are often the starting or primary cause of the disease. But what is the particular derangement in the system, or what the department of the human machine, which is the immediate cause, or through the diseased or defective working of which it results, is more difficult to determine. It may result from a derangement of the system, caused by some copious or long-continued discharge or evacuation, as from long-continued Diarrhœa, from Hemorrhage, from Leucorrhœa, or it may result directly from Consumption or Disease of the Lungs; also, from starvation or lack of food, and from impure nutriment, and, as already intimated, from foul air. It may, and often does, result from Dyspepsia or defective Digestion.

Unquestionably the immediate and direct cause of Emaciation or Atrophy is a derangement or diseased condition of some part of the delicate machinery of nutrition. It may be in the stomach, the bowels, the mesenteric glands, the lymphatics, or the absorbents. Most likely, I think, the lacteal or mesenteric glands are the organs most directly implicated. Especially is this the case in children; at least, it has often been found to be so; and if the cause in children, why not in grown persons? The lacteals

are a set of small but numerous glands, situated in the mesentery and connected with the bowels, whose office or function it is to extract the nutriment or chyle from the contents of the bowels and convey it to the thoracic duct, to be, by that, carried into the blood, and thence distributed to all parts of the body.

TREATMENT.—It may safely be inferred that in all cases of Emaciation, where you do not know some other positive cause, as Starvation, Bad Food, or Consumption, that some portion of the glandular or secretory system is out of order; hence, an alterative or constitutional treatment is required. In children, where evidently the mesenteric glands are diseased or defective, Cod-liver Oil has been found one of the most effective and beneficial remedies; and it may be used in all cases with reasonable expectation of benefit. The dose for infants and small children is from a half to a teaspoonful three or four times a day, in a little breast or other milk. For youths and adults, a tablespoonful three or four times a day. If the abdomen is swollen and sore, as is nearly always the case when the mesenteric glands are the seat of the difficulty, a little of the same Oil should be rubbed on it once or twice a day, especially in cases of children, and if a bit of oiled silk were laid over it, confined with a bandage, it would be an improvement. In addition to this, predigested food may be used, or artificial digestants, such as Pepsin and Pancreatin, may be used. The following is a good prescription: Dilute Hydrochloric Acid, ½ to 1½ drachms; Essence of Pepsin, ½ ounce; Essence of Pancreatin, ½ ounce, and Compound Tincture of Gentian, sufficient to make two ounces; of this take a teaspoonful after meals.

Proper attention must also be paid to the skin. A frequent warm Sponge Bath, the Water strongly saturated with Salt, should be employed at night, rubbing the surface well afterward with the hands or a try towel; a Cold Bath or Shower Bath in the morning, on rising, once or twice a week, rubbing the surface well. By all means, let the invalid take plenty of exercise in the open air; live on a nourishing, generous, and easily-digested diet; using a good proportion of meat, such as Beef, Mutton, and Wild Game.

The bowels must also be attended to. Some Laxative Pills that will also act on the liver and glandular system, should be taken regularly. Calomel in divided doses, *i. e.*, in eighth grain doses, every fifteen minutes, until a grain and a half has been taken, followed by a small dose (a drachm or two) of Phosphate of Soda, will be found a most useful cathartic, and one which will act on the liver too. A dose of Phosphate of Soda may be taken daily, or at least once or twice a week. Rely on Alteratives, Tonics, Nourishing Diet, Salt Baths, and plenty of exercise in the open air.

# OBESITY—EXCESSIVE FAT.

Obesity is a condition of the physical system directly the opposite of that last noticed—Emaciation or Atrophy. It is an accumulation of too much fat. A certain amount of fat, as a constituent element of the body, is necessary to health as well as desirable for appearance; but its accumulation may become so great as to amount to disease, and may become an impediment to the performance of the duties of life, as well as a cause of its shortened duration.

Obesity usually commences in young persons, generally about the time of puberty. It seldom attacks persons, or commences in them after they have arrived at mature age, say twenty-one or twenty-five, except it be in quite old persons, and then seldom to the extent of causing any very serious inconvenience. Sometimes it begins in quite young persons, and even in infancy; though its most usual time to make its first appearance is between the ages of twelve and sixteen. The later the disease commences in life, the more controllable it is by treatment and management.

The first thing indicated in the treatment is to cut off the supply, the material, as far as possible, which produces or furnishes the fat. Fat is a principle, or rather a compound of three principles (Stearine, Margarine, and Oleine); and it requires fat to produce fat. If, therefore, you wish to counteract the tendency to Obesity, to prevent or decrease it, you must rigorously interdict from the person's diet all articles of fat, oil, butter, and the like, and every thing, as far as possible, which contains one or more of the constituent elements of fat. Of course, it is impossible to exclude every thing which is capable of making fat, as there are no articles of food which do not contain some portion of oleaginous matter, and almost all are capable of transformation into fat, or of producing more or less of that article. Let all Fat, Oil, and Grease be excluded from the diet. That will be that much gained.

The next thing of importance is that the mass of food lie in the stomach as short a time as possible, consistent with health and the utility of the food, so that a fatty fermentation may not be set up in it. Rapid digestion should be promoted. To this end the time for meals should be fixed for an early hour in the day, before exertion has rendered the power of the organs of nutrition languid and weak. Breakfast should be light, a little Toast and Tea or Coffee, and if much active exercise or labor is intended, a little Lean Meat. Let the dinner be from twelve to one o'clock, not later than two, and consist of Stale Bread, and Meat without any fat about it, plain boiled Macaroni, or Biscuit or Cracker Pudding. No liquids of any kind.

as Liquids retard digestion. Hence no drinks of any kind, not even water, should be taken at dinner, nor for half an hour or an hour after. The person should eat enough at dinner to do him for the day; no "second dinner" or supper should be taken. A little Cracker and Water, or Toast and Tea may be taken in the evening, or a cup of Gruel or Roasted Apple before going to bed, but no regular meal. The smallest amount of food consistent with the patient's health can only be found and fixed by experiment; which should be ascertained, and that amount only used.

In cases where the fat is largely accumulated in the abdomen, it will be well for the patient to wear a stout bandage, properly adjusted, so as to support the muscles of the abdomen, which may be tightened gradually. The support thus given to the abdominal muscles, relieves the dragging sensation in the loins and back, which many persons experience and suffer from with large abdominal viscera, increased by Obesity. It will also tend to afford assistance to the absorption of the fat.

As to medical treatment, perhaps the most important is the use of Alkalies. Some persons are in the habit of using large quantities of Vinegar and other Vegetable Acids. There is a common idea among the people that Vinegar is an antidote to Fatness or Obesity. This is a mistake. It may sometimes, in fact does, have that tendency, but it is more by injuring r destroying digestion than from any special or specific counteracting of the tendency to fatness. Alkalies, on the contrary, tend to change fat and oily matter into soap, which is rather healthy than otherwise. It converts the excess of fat in the stomach and bowels, or a portion of it, into soap, which passes off with the excrement. Hence the use of some proper Alkali is advisable. A very good preparation for this purpose, which can generally be had at any drug-store, is Liquor Potassa. It is made of Sub-carbonate of Potash, and Lime, and Water. The dose would be, to commence with, about half a teaspoonful, in a little Water or Milk, three times a day, before meals, gradually increased to a teaspoonful, and finally to about two teaspoonfuls. If you cannot get the Liquor Potassa, use weak Lye, Carbonate of Soda, Saleratus, and the like. Endeavor to turn your stomach into a sort of soap factory on a small scale, and thus convert the excess of fat, before it has time to pass into the system, into soap, and let it pass off from the bowels, as other refuse and useless matter.

As to exercise, if the person is young and vigorous, and his Obesity does not prevent the use of his legs, the best thing he can do is to walk as long and as much as he can every day. The greater number of hours that can be devoted to this exercise every day, the quicker and greater will be the diminution of the bulk of the body. Riding on horseback—the rougher

going the better—is also good exercise for a person in this condition. All kinds of out-door exercise may be regarded as conducive to the object sought to be accomplished—the reduction of the Fat, and the overcoming of the tendency to Obesity.

Starch, upon being taken into the body, is converted into a kind of sugar before it is used by the body (potatoes, corn, wheat, and like articles of diet contain much starch). Sugar and fat supply the energy, *i. e.*, the fuel which is necessary to the contraction of the muscles; if the fat and sugar (including starch) are restricted from the fat person's diet, and the person then takes much exercise, the fuel must come from some place, so the fat which is stored upon the body is used; hence, the reduction of the amount of fat upon a person who exercises much and eliminates fats and sugars from his diet.

The bowels must not be suffered to become or remain costive. After the ordinary nutriment has been extracted from the food by digestion, the sooner the remainder of the mass moves off from the stomach and bowels the better. The bowels, therefore, should be kept rather loose all the time. It is best, where it can be done, to secure this result without physic; but, where necessary, Cathartic medicine must be resorted to. In conclusion, I would say, as the substance of the whole matter: Limit the diet to the lowest amount possible to live on, excluding all fatty, oily, and improper articles; keep the bowels open; use freely and steadily of alkalies, and take plenty of exercise.

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## APPARENT DEATH—ASPHYXIA.

### FROM DROWNING.

If the person has been drowned but a short time, or there is the least hope of restoring him, he should be placed immediately in such a position as will best allow the water to pass out, or will force it out of his lungs and throat. Remove his clothes, open the mouth, and lay the body across your knees, face downward, the breast and stomach resting upon your knees or place the drowned person over a barrel or hogshead, in the same position; half a minute or so will suffice to let the water run out, the assistants making use of proper efforts in the meantime to aid in its expulsion; then wipe the body dry, wrap in warm blankets, and place it in a warm, dry, and well-ventilated room; or if the weather is warm and the sun shining, place the body in the sun, with his face turned toward it. The whole surface of the body should now be thoroughly rubbed with the dry hands, by stout, strong persons, perseveringly; if the patient is in bed, Hot Bricks, Stones, or bottles of Hot Water should be applied about the body, legs and feet, and

every means possible used to restore natural warmth to the body. At the same time, means must be used to inflate the lungs. Hold the nostrils tight, and let some one blow strongly into the mouth of the patient, forcing air into the lungs; then press gently on the lower part of the breast, stomach, and region of the lungs, to force out the air again; then repeat the blowing or inflating, and so continue as long as there is any hope or prospect of restoration. Occasionally turn the patient on his face, and let the head and upper part of the chest hang down a little, so that if there is any more water in the lungs it may escape; gentle traction upon the tongue may start the respiration. Persevere in such efforts and you may succeed beyond all expectation. Persons have been restored to life that have been under water for many minutes by making use of the above means. A small hand-bellows, such as are used for kindling fires, if handy, may be used to inflate the lungs. Stimulating injections should be made into the bowels or rectum at the same time.

### FROM HANGING OR CHOKING.

Remove the clothing from about the neck and chest; place the patient in an easy position, the head and neck a little elevated; then rub the body well with Hot Cloths, or with the bare hands, commencing gently at first, and increasing; at the same time, as soon as it can be done, let Hot Bricks or Rocks be placed about the body, between the thighs, to the feet, and under the shoulders; and endeavor to induce animation and breathing by inflating the lungs, the same as in the case of Drowning. Bleeding is also recommended, to relieve the pressure of blood upon the heart and lungs.

### FROM FREEZING.

Persons have been restored to life after being frozen to death, apparently, for several hours. The proper course to pursue, where life has apparently ceased from Freezing, or where the person is in a state of stupor and insensibility, is carefully to remove him into a cold room or barn, and cover the whole body with Snow, several inches deep, if it can be got, leaving only the mouth and nostrils free. Place the body so that the melted Snow may run off easily, and, as fast as it melts, apply more. If you cannot get Snow, then put the person in Ice Water. In this way thaw the body slowly and gradually until the limbs and every part become pliable and natural. Be very careful at first, in handling, that you do not bend or try to bend the limbs, fingers, or any part, lest you should break them. As the limbs become pliable, rub them and the whole body with Snow; or, as the next best thing, Ice Water, and continue till the skin becomes red. After the frost has been overcome, or the person has become thawed, place him on a dry bed, in a cold room, and cover him with cold flannel clothes,

and give a stimulating injection every fifteen or twenty minutes, such as Tincture of Camphor, a teaspoonful in half a pint of Warm Milk and Water, or the Camphor alone will do, in Warm Water, or an ounce of Brandy or Whiskey in Water; as soon as symptoms of returning animation appear, give injections every few minutes of warm Coffee, not very strong, and, as soon as he can swallow, give him a teaspoonful of Coffee every five or ten minutes. Be careful that no external heat is applied; do not even have fire in the room. A warm room would kill your patient beyond all doubt. He must recover his natural warmth in a cold bed and cold room, and must even avoid fire, the stove, or a warm room, for several days after he has been restored, or it may cause serious diseases of the bones and soft tissues.

### FROM A FALL OR BLOW.

In case of Suspended Animation or Insensibility, caused by a severe Blow or Fall, the best thing you can do is to give internally a stimulant, of which the Alcoholics are perhaps as good as any, and usually can be obtained sooner and with less trouble than others. If Whiskey or Brandy are used, they should be diluted and given with a spoon. Also, bathe the surface, especially the bruised parts, with Cold Water, or with Alcohol, to which a few drops of Arnica Tincture have been added. As soon as the patient recovers, give an active Cathartic.

### FROM STARVATION.

Give repeatedly small injections into the rectum of Warm Milk, and after a little, add to the injections Chicken Broth or Beef Tea. When the patient begins to breathe, give a few drops of Warm Milk every minute or two, and as he revives increase to a teaspoonful at a time every five or ten minutes. As he still revives and asks for more food, give Toasted Bread and Water, in spoonful doses; and next, a little Broth or Beef Tea, and a few drops of Wine. Be careful not to give too much. Let him eat often, but only a little at a time.

### FROM LIGHTNING.

Dash Cold Water freely over the head, face, and whole body, and continue to pour it on the head, and let it run down over the body for some time. If this does not revive him in a few minutes, resort to artificial respiration as directed under Drowning. Give stimulants, as Brandy, by means of a teaspoon; do not pour it down the wind-pipe. As soon as the eyes begin to move, shade the face; when he breathes freely, place him in a light and airy room, and wash the body with Warm Water.

### FROM NOXIOUS VAPORS, GASES, ETC.

EXPOSE the patient to the open air, dash Cold Water in the face and over the body, rub the body well, and inflate the lungs, as recommended in cases of Drowning. Use artificial respiration and stimulants. Bleeding may be necessary.

### FROM SUN-STROKE—COUP DE SOLEIL.

WHAT is called Sun-stroke is caused by exposing the head too long to the direct rays of the sun in extreme hot weather, until the brain becomes too much heated, causing the person to fall senseless to the ground. In such cases, remove the patient carefully into a shady and cool place, pour Cold Water on the head, but a little at first, but continuously, and gradually increase it. At the same time rub the body well with the hands, wet with Cold Water; and if it can be done, or as soon as it can be done, give repeated injections of Warm Water, with some stimulating and active Cathartic ingredients in it, so as to warm and stimulate the lower bowels and produce an action, which will have a tendency to attract the blood in that direction, and thus relieve the brain. Bathing the feet and legs in Hot Water will also be good.

### TO PREVENT SUN-STROKE.

PERSONS exposed to the sun in extreme hot weather, should keep the head wet with Cold Water as much as possible. To do this, there is, perhaps, no better way than to keep a Handkerchief, or bunch of Raw Cotton, in the hat constantly wet with Cold Water. As fast as it becomes dry or hot, wet it again, and occasionally, if convenient, wet the head well with Cold Water.

Heat produces two conditions in man, called Heat or Sun-stroke and Heat Exhaustion. The first is usually produced by direct exposure to the sun's rays; the second is produced by long continued exposure to a high temperature, as in boiler-rooms. In Sun-stroke, the temperature is always high (106° to 109°), and the face is flushed.

THE TREATMENT consists in bending every effort to reduce the temperature; this is best accomplished by means of the Cold Bath or Cold Pack. In Heat-exhaustion, the temperature is usually low, often sub-normal. The treatment consists in adminstering stimulants and raising the temperature to normal by the use of heat in the form of Hot-water Bottles, etc.

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## MEDICINES AND DRUGS.

EVERY ten years a committee of physicians, druggists, and manufacturing druggists, meet and arrange a complete list of all the useful drugs.

This list is compiled with the dosage, action, history and preparation, and uses of each article. There are also many interesting facts given in connection with most of the drugs. This list is printed and bound in a volume called in this country the "United States Pharmacopœa," abbreviated "U. S. P."; which abbreviation being written after a drug means that it is official, *i. e.*, in accord with the latest Pharmacopœa.

We will give a partial list of the drugs and preparations with their dosage, action, and usage, in accord with the last Pharmacopœa, supplementing it with some of the newer remedies which have proven useful in our hands, and which will undoubtedly appear in the next Pharmacopœa.

Fewer drugs are used nowdays in a prescription than were in days gone by — in the days of the shot-gun prescription — when a large number of drugs were mixed together and given in the hope that some of them would hit the mark and produce a cure. Now, we depend upon more accurate diagnosis and a more definite knowledge of the action of drugs. Medicine has, in fact, become more scientific. The modes of administering drugs have also been greatly improved upon; this is perhaps due, to a certain extent, to the use of the active principle of a drug instead of using the entire drug; for example, we get the same action from the use of $\frac{1}{100}$ of a grain of Atropine, the active principle of Belladonna, as we would from three or four grains of the drug itself, so that the bulk is diminished. The manufacturing druggist can now put up most drugs in carefully coated pills or in capsules, which have the advantage of being without taste and yet are readily swallowed and absorbed. The hypodermatic administration of drugs is daily becoming more generally recognized as a valuable method for administering many drugs, the action being prompt and sure. The emetic, Apomorphine, administered by this means acts within half a minute, and never fails, if the dose is sufficiently large.

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## RULES TO ADMINISTER MEDICINES.

**Suppose the dose for an adult to be one dram:**

**A child under 1 year will require but one-twelfth, or 5 grains;**

| | |
|---|---|
| 2 years, | one-eighth, or 8 grains; |
| 3 years, | one-sixth, or 10 grains; |
| 4 years, | one-quarter, or 15 grains; |
| 7 years, | one-third, or 1 scruple; |
| 13 years, | one-half, or ½ dram; |
| 20 years, | two-thirds, or 2 scruples. |

**A person above 21 years, the full dose of one dram.**

**A person of 75, the inverse gradation of the above.**

This is an excellent table for regulating the Doses of Medicines: a Mixture, Powder, Pill, or Draught, may be proportioned to a nicety by attention to the above rules.

## TO MEASURE MEDICINE INSTEAD OF WEIGHING.

A dram of any substance that is near the weight of water, will fill a common tea-spoon level full. Four tea-spoonfuls make a table-spoonful, or one-half of an ounce. Two table-spoonfuls, an ounce, and so on. On the same principle, one-third of a tea-spoonful will be one scruple, or twenty grains in weight.

The doses of medicines recommended for an adult, or grown person, may be varied to the age of the patient, according to the following rule:

| | | | | |
|---|---|---|---|---|
| Two-thirds | of the dose | for a person | from | fourteen to sixteen; |
| One-half | " | " | " | seven to ten; |
| One-third | " | " | " | four to six; |
| One-fourth | " | " | " | three years old; |
| One-eighth | " | " | " | one year old. |

## LIQUID MEASURE.

| | | |
|---|---|---|
| A table-spoonful | contains | Half an ounce; |
| A pint | " | Sixteen ounces; |
| A teacup | " | One gill; |
| A wine-glass | " | Two ounces; |
| A tea-spoonful | " | Sixty drops; |

Four tea-spoonfuls are equal to one table-spoonful.

## DRY MEASURE.

| | | |
|---|---|---|
| A table-spoonful | contains | Four drachms, or $\frac{1}{2}$ ounce; |
| A tea-spoonful | " | One drachm; |
| A tea-spoonful | " | Sixty grains. |

## DOSES OF MEDICINE.

The following scale has been established for the regulation of the doses of medicine in general:

If the dose for a person of middle age be one drachm, the dose for one from fourteen to twenty-one years of age will be two scruples, or two-thirds as much.

From seven to fourteen, half a drachm, or one-half.

From four to seven, one scruple, or one-third.

The dose for a child of four years will be fifteen grains, or one-quarter.

For a child of three years old, ten grains, or half a scruple.

For a child of two years old, eight grains; and for one a year old, five grains, or one-twelfth as much as for a person of middle age.

Women, in general, require smaller doses than men, owing to a difference in size and constitution.

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## TABLE OF DOSES FOR CHILDREN.

As a general rule, if the dose for a grown person is a teaspoonful of any fluid medicine, half may be given to a child seven years old; one-fourth to one from three to five years of age; one-eighth to a child of one to three years; and one-sixteenth to a child under one year.

In the same proportions it will be safe to give children any medicines which are in the form of powder. There are exceptions to this rule, however, a few of which may be named.

Calomel to a grown person is given as a purgative, in doses of $\frac{1}{2}$ to 10 grains. To a child less than one year, $\frac{1}{10}$ to 2 grains, which, it will be perceived, are in greater proportion. And so of Anodynes, such as Laudanum, Paregoric, Bateman's Drops, etc., *which require great caution in their use.*

Laudanum for grown persons.....5 to 20 drops.
For a child one year old.....1 to 3 drops.

Castor Oil is another example.

To a grown person, we ordinarily give one ounce or two tablespoonfuls. To a child of two years old, half an ounce or one tablespoonful. To a child under one year, a quarter of an ounce or two teaspoonfuls.

The doses of Medicines should always be weighed or measured, not guessed at. It is always advisable to have in a family a graduated glass measure for liquids, which can be purchased at any drug-store, which gives the minims or drops, drachms, and ounces.

Sixty drops are considered equal to a drachm. A common-sized teaspoonful is considered equal to a drachm, and a tablespoonful to half an ounce. A set of apothecaries' weights should be kept for weighing powders; in the country where drugs cannot be readily procured, they are highly useful.

### MEDICAL SIGNS.

Twenty grains make one scruple, ℈j.
Three scruples, or sixty grains, one drachm, ʒj.
Eight drachms, or 480 grains, one ounce, ʒj, or oz.
Twelve ounces one pound.

# MEDICAL FLORA:

OR,

# VEGETABLE MATERIA MEDICA.

# MEDICAL FLORA:

OR,

# VEGETABLE MATERIA MEDICA.

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**Aconite**—(*Aconitum Napellus*), *Wolf's Bane, Monk's Hood.*—This is a narcotic poison, but, like many other narcotic vegetables, may often be employed to advantage as medicine, if used with care and in a proper manner. It is an herb or plant, native to most parts of Europe, and is cultivated to some extent, as an ornament, in the gardens of this country. It grows to the hight of four or five feet, bearing a long stem or spike of deep blue and very beautiful flowers, which appear in May and June. The root is said to be the most powerful part, but the leaves are also used.

Medical Properties and Uses.—Aconite is mostly used in the form of a tincture, made by adding 1 ounce of the root or herb to 6 ounces of Alcohol, and letting it digest for two weeks; though it is also used in substance, and in the form of an Alcoholic Extract. It will probably never be necessary for you to prepare the article for use; for, should you ever have occasion to use it, you can always get it at a drug store, especially the tincture, which is the only form in which you would be likely to use it. It is by many considered a valuable remedy in Fevers and Inflammations of a high grade, in Nervous and Neuralgic Affections, and in Inflammatory Rheumatism and Gout. It is probably more beneficial in cases of Inflammatory and high Fevers than in any other complaints. Dose: to a grown person, from six to ten drops of the tincture three or four times a day, in a little water. It should not be continued more than two or three days at a time, unless given in much smaller doses. It is one of the principal remedies in the Homœopathic practice, and when given in that way is a most valuable remedy in all Febrile Affections. As an approach to the Homœopathic plan, add one drop of the tincture to an ordinary glass tumblerful of clean, pure water, and give a tea-spoonful of this every one, two, or three hours. I have seen it produce the most

decided effects, when thus given, in allaying Fevers; but remember that it is an acro-narcotic poison, and therefore should never be given in over-doses.

**Allspice**—(*Myrtus Pimenta*).—Allspice, which is a common article in almost every family, is the berries of a small tree that grows in Mexico, Jamaica and other parts of the West Indies, and in South America. The tree is an evergreen, and grows to the hight of twenty or thirty feet Most of the Allspice in this country comes from the Island of Jamaica. The berries are gathered a little while before they are ripe, carefully dried, and then boxed or put into bags, ready to be sent off. The Pimento Berries were supposed to combine the flavor of Cinnamon, Nutmeg, and Cloves—hence the name of *Allspice.*

MEDICAL PROPERTIES AND USES.—Allspice has a moderately warm and quite agreeable flavor, and is astringent and aromatic, as well as slightly stimulant. As a medicine, it is mostly used in cases of Diarrhea and Summer Complaint. For such purposes, it may be given freely in the form of a tea or syrup. It forms part of a highly valuable compound, used with great success in many parts of the country, as a safe domestic remedy for Bowel, or Summer Complaints—which is made as follows: Allspice, ½ ounce (or 2 table-spoonfuls); Cinnamon Bark, ½ ounce; Cloves, ¼ ounce; White Oak Bark, ¼ ounce; bruise all and simmer slowly in 1½ pints of Water, down to ½ pint; strain; then add 4 ounces of Loaf or White Sugar—bring it to the boiling point again to melt the Sugar, and then add half as much good Brandy as there is of the syrup, and it is ready for use. To be given cold, in doses of from a tea-spoonful to two table-spoonfuls, according to the age of the patient, and repeated from three to six times a day, according to symptoms. This is an excellent remedy in all cases of Diarrhea and Summer Complaints.

**Aloes**—(*Aloe Perfoliata—Aloe Spicata*).—This beautiful and valuable plant, or shrub, is a native of South Africa, where it grows in great abundance, and flowers most part of the year. From good authority, we learn that about fifty miles from the Cape of Good Hope the Aloe grows in great abundance; large tracts of land being almost entirely covered with it, which renders planting unnecessary. It is cultivated also in the Islands of Barbadoes and Socotra, as well as some others; hence we have what are called several varieties, as Barbadoes Aloes, Socotrine Aloes, etc.; and as that brought from Socotra is, from some cause or other, supposed to be the best, we find that nearly all in this country is bought and sold as *Socotrine Aloes!* But the truth is, nearly all that we find in the drug stores and apothecary shops is the Cape Aloes (*Aloe Spicata*), and is brought from South Africa. The article used as medicine, usually called Aloes, is in the

form of a gum or resin, and is made from the juice which runs from the leaves of the plant, when cut. The manner of obtaining it is to cut the leaves from the plant and place them perpendicularly by the side of each other in a suitable vessel, so as to afford an opportunity for the juice to flow out. It is afterward collected in a large, shallow vessel, and exposed to the rays of the sun, till it evaporates and becomes of a proper consistence—that is, till it becomes hard.

Medical Properties and Uses.—Aloes is more used, perhaps, than any other one article of medicine, and is combined more or less with nearly every patent medicine in the country. It is a stimulating cathartic, or purgative medicine, acting chiefly upon the lower and large intestines, and promotes their peristaltic action, and by that means causes the expulsion of any accumulation in them: from its operation being almost entirely confined to the lower portion of the intestinal canal, or rectum, it also possesses considerable emmenagogue properties, or acts on the womb, and promotes the Menses, or Courses. This may be attributed, and no doubt is the case, to a sympathetic extension, or irritation through the rectum to the uterus, or womb. With its other powers, it has the property of slightly stimulating the stomach. It is, therefore, in small doses, an excellent remedy in habitual Costiveness, or when the bowels are bound up, and attended with a derangement of the digestive organs. It is good in the treatment of Ascarides, which means little worms about the fundament, or lower bowel, in which case it should be given as an active purgative; but it is more used to regulate the womb, and bring on a regular flow of the Menses, than any other medicine, and enters into every patent medicine sold for this purpose. The medium dose of Aloes is ten grains; but as a laxative, or gentle purge, it will often operate in the quantity of two or three grains; and, when an active impression is required, the dose may be increased to twenty grains. In consequence of its exceedingly bitter taste, it is most conveniently administered in the shape of pills. A good and innocent pill to keep the bowels gently open, is equal quantities of Aloes and Rhubarb, a little Castile Soap, and a few drops of the Oil of Peppermint. Three or four of these pills, taken on going to bed, has a very fine purgative effect, and is valuable to those who are subject to Costiveness. On account of its direct action on the lower bowels or rectum, Aloes should not be used in case of Piles, or where there is a tendency to that painful affection. But in all affections of the Stomach, Liver, Womb, habitual Costiveness, or Headache, it is an invaluable purgative. The dose is from five to fifteen grains, for a grown person, and from one to four grains for a child.

**American Sarsaparilla**—(*Aralia Nudicaulis*).—The Aralia Nudicaulis, or American Sarsaparilla, is a species of the Spikenard (*Aralia Racemosa*), resembling it somewhat in appearance, but has larger leaves, and does not grow so high. Its height is usually from one to two feet, having a large, long, soft, fleshy, and creeping root (which is the part used), of an aromatic and rather fragrant, balsamic odor, and a sweetish, aromatic taste. It bears two or three bunches of yellowish green flowers, followed by bunches of small berries, somewhat resembling the common Elder Berries. It grows in sandy, rocky and rich upland soils, in the Northern and Middle States. Not common in the Western States.

Medical Properties and Uses.—It is alterative, and somewhat stimulant, and used in the form of decoction and syrup, as a substitute for the foreign or Smilax Sarsaparilla, and by many is considered fully as good. Indeed some physicians consider it better. Useful in constitutional diseases, such as Tuberculosis, Syphilis, Skin Diseases, and wherever an alterative and purifying medicine is needed. May be used either alone, or in combination with other alteratives. Dose of decoction or syrup: half to a wineglassful three times a day.

**Anise Seed**—(*Pimpinella Anisum*).—The seed of the common Garden Anise. This plant is cultivated in all our gardens for medical purposes, and is too common to need further description.

Medical Properties and Uses.—The seeds are useful in Dyspepsia, and very much used for the Diseases of Children and Infants. For Flatulence, or Wind, Griping and Colicky Pains, etc., an infusion, or tea, made of the seeds, may be given. For Dyspepsia, the Oil dropped on Sugar is preferable. Anise has a fine aromatic smell, and a warm, agreeable, sweetish taste. The Essence of Anise, which is made by adding the Oil to Alcohol, in the proportion of 1 part of the Oil to 8 parts of Alcohol, is often used to flavor, or render more pleasant, other medicines and compounds. Dose: of the Oil, from two to ten drops; Essence, one to two teaspoonfuls. A tea, or infusion of the seeds, which is generally used for children, may be given in doses from a tea to a tablespoonful, or more, and repeated at pleasure. Found in all the drug-stores.

**Arnica**—(*Arnica Montana*), *Leopard's Bane.*—This is a small plant, of about a foot in height, and is found chiefly in the mountains of Northern Europe, and, for certain valuable purposes, is one of the most important articles in the Materia Medica. The flowers are the part used, and then in the form of tincture, which is made by adding 2 ounces of Flowers to 1 pint of Alcohol, and allowing it to stand two weeks. From one of its names you may perceive that Arnica is also a poison, and therefore is never to be used in large doses.

Medical Properties and Uses.—It is mostly used as an external remedy, and in cases of Bruises, Contused Wounds, Strains, and the like. Tincture of Arnica is a remedy that every family should keep constantly in

the house, and every person traveling should carry a vial of it with him. A little of the Tincture added to Alcohol, in the proportion of 10 drops to 1 ounce of Alcohol, is a splendid application in cases of Rheumatism of the Joints, and in Pains in the Feet or Ankles, caused by walking. Arnica is also recommended by some as a remedy in other affections; but there is nothing in which it seems to act so like a specific, and is so valuable, as in fresh Wounds and Injuries to the flesh. The Tincture or Flowers may be found at the drug-stores.

**Arrow Root**—(*Maranta Arundinacea*).—Arrow Root is an article found in the drug-stores, in the form of starch; indeed it is starch, made from the root of this plant, which grows in the West Indies. It is used as a light, nutritious diet, for children after Weaning, and for delicate persons during Convalescence, in the form of a jelly, made by boiling a little of it, and seasoning it with Sugar, Lemon Juice, Fruit, Jellies, and the like. It is generally liked by children, and, next to Tapioca, is, perhaps, the best article of the kind known. It is very good as a diet during recovery from Bowel Complaints, Fevers, and the like, both for grown persons and children.

**Asafœtida**—(*Ferula Asafœtida*).—This is the most powerful of all the fetid gums. It is obtained from the Asafœtida plant, which is a native of Persia. The drug, or gum, is the inspissated juice, obtained from the plant by scarifying it, and then evaporated in a similar manner to that of the Aloe juice. Asafœtida may be easily distinguished by its strong fetid smell, resembling very much that of Onions. The best article is of a clear, pale reddish color, variegated with numerous white specks.

Medical Properties and Uses.—Asafœtida is a most valuable remedy in many cases—especially in Hysterics, Flatulent Colics, and Nervous Affections. It is expectorant, anti-spasmodic, emmenagogue, and a nervous stimulant. When used as an anti-spasmodic,it should be given in the form of a tincture, from one to two teaspoonfuls at a dose, for a grown person. In other cases, it is mostly used in the form of pills. Dose: from five to ten grains, and sometimes more.

**Balsam of Copaiba.**—Balsam of Copaiba is a light yellowish-colored fluid, about the consistence of fresh honey, and is obtained, like the other balsams, from a large tree growing in South America, especially in Brazil, and also in some of the West India Islands, called the Copaifera-tree. There are several varieties of the Copaifera which yield the balsam, as the *Copaifera Jacquini*, *Copaifera Guaianensis*, *Copaifera Oblongifolia*. The balsam or juice is obtained from the tree by making incisions in the trunk and limbs, just after the wet season, and large quantities are said to exude in a few hours. At first, it is thin and colorless, but soon becomes thicker and slightly yellowish. It is imported from the ports of Brazil, Maracaibo, Carthagena, and the West Indies; but that mostly in use in this country is from Brazil, and is considered the best. Found in all the drug-stores.

Medical Properties and Uses.—Balsam Copaiba is mostly used for its diuretic properties, and its specific action on the mucous tissues of the Urinary Organs. It is also stimulant and slightly cathartic. It produces a sensation of heat in the throat and stomach when swallowed, and in large doses, acts as an Irritant. It is used mostly in Chronic Mucous Affections, as Chronic Gonorrhœa, Gleet, Leucorrhœa, Chronic Dysentery, Irritation of the Bladder, and in Chronic Bronchitis. It is an important ingredient in most of the compounds and recipes for Gonorrhœa, being usually combined with such articles as Sweet Spirits of Niter, Oil of Almonds, and Spirits of Turpentine, in about equal parts, and taken in teaspoonful doses three or four times a day. Balsam Copaiba is often a most effectual remedy for females in Leucorrhœa, or the Whites. Dose of the Balsam: from ten to thirty drops two or three times a day.

**Balsam of Peru.**—This is a thick balsamic fluid, of a dark red or brown color, about the consistence of thick molasses, of a bitterish acrid taste, and pleasant aromatic smell. It is the resinous juice obtained from a large tree which grows in Peru and other parts of South America, known by the technical name of *Myrospermum Peruiferum*. Balsam of Peru may be found in the drug-store.

Medical Properties and Uses.—It is a stimulating expectorant, and somewhat tonic or strengthening, acting specially on the mucous membranes of the system. It is used mostly in Chronic Affections of the Lungs, in Coughs of long standing, in Gonorrhœa, Gleet, Leucorrhœa, and Chronic Mucous Inflammations of the Stomach and Bowels. It is also applied externally to old Sores, Wounds that do not heal readily, and, in the form of an Ointment, made by melting with it an equal quantity of Tallow, to Ringworm, Scald-head, and the like. The dose is from ten to thirty drops, to be taken the same as Balsam of Fir, or may be given, especially for Coughs and Lung Affections, in a little solution of Gum Arabic.

**Balsam of Tolu.**—This is an article obtained from a tree found also in some parts of South America, known in Botany by the name of *Myrospermum Toluiferum*, and is said to resemble the tree from which the Peru Balsam is obtained. It is undoubtedly of the same species. Incisions are made into the body of the tree, from which the juice or balsam exudes, like the sap from the sugar tree, and is received into vessels and allowed to concrete or thicken. It is of a yellowish-red or brown color; of a sweetish, pungent, agreeable taste; very fragrant, and usually soft and tough, but by age and exposure to the atmosphere becomes hard and brittle, like rosin. It soon becomes soft by chewing, and readily melts by heat. It is readily dissolved in Alcohol or Spirits, as well as in Ether and Essential Oils. May be found in all the drug-stores, in substance, in tincture, and in syrup.

Medical Properties and Uses.—Balsam of Tolu is a soothing expectorant, and somewhat tonic and stimulant—useful in Chronic Catarrhs, or Colds and Coughs, and all chronic or long standing affections of the Lungs,

Bronchitis, and the like. In such cases its action is very similar to that of Balsam of Peru, and may be used instead of it; but is generally to be preferred because of its more agreeable flavor. Syrup or Tincture of Tolu Balsam is often added to Cough Mixtures, rendering them more pleasant, as well as often more effectual. When combined with other articles, as a Cough Medicine, such as Syrup of Squills, it may be in equal proportions—say 1 ounce of each. The dose of the compound would be one teaspoonful once every hour or two. The dose of the Balsam alone is from ten to twenty grains. It is seldom used alone.

**Belladonna**—(*Atropa Belladonna*).—Known also as Deadly Nightshade. This is a herbaceous plant, growing to the height of about three feet, having a soft, sprangled, creeping root; each bunch of roots sending up four or five stalks, which are of a purplish color, and covered with a sort of fur or soft hair. The leaves, which is the part mostly used, are soft, oval-shaped, and of a dull green color, growing in pairs. The flowers, which appear in June and July, are of a dark purple color at the edges or border, becoming paler toward the stem. The plant is a native of Europe.

Medical Properties and Uses.—Belladonna is a narcotic poison; and when taken in large doses, it exerts a powerful influence upon the brain and nervous system, producing a dilatation or an enlarging of the Pupils of the Eyes, tending to Dimness of Sight, Vertigo, Deafness, Confusion of Mind, with Thirst, Dryness of the Mouth and Throat, Difficulty of Swallowing, Sickness at the Stomach, and often a sort of Eruption on the Skin, like the Measles; and in excessive doses, Delirium. It is a valuable medicine, when used carefully, and in proper doses. In cases of Spasms, Convulsions, Epilepsy, Neuralgia, Mania, Night Sweats of Consumption, Palsy, Gout, Rheumatism, Painful Menstruation, Amaurosis, and all Nervous Affections, it is often used with great advantage. It is mostly used in the form of an extract, which can always be had in the drug-stores. Dose of the powdered leaves: from one to three grains; of the extract, from half a grain to two grains—once or twice a day. The dose may be gradually increased each day, till double the quantity or more can be taken with safety; but it should always be used with caution, and the symptoms carefully watched. *Atropine* is the active principle of Belladonna; it is a powerful drug given in doses of $\frac{1}{150}$ to $\frac{1}{100}$ of a grain. It is often combined with Morphine to overcome the binding action of the latter upon the bowels. Atropine is used for all the purposes that Belladonna is used for. It is sometimes administered hypodermatically, and is a direct antidote to Opium and Morphine.

**Black Pepper**—(*Piper Nigrum*).—Black Pepper is the product of a vine or creeping plant, which grows in the East Indies, and is cultivated in Sumatra, Java, Borneo, the Philippines, and other neighboring islands. The supplies for the United States are chiefly derived from Sumatra. This article is so common on our tables that a further description is unnecessary.

MEDICAL PROPERTIES AND USES.—Black Pepper is stimulant, tonic, and astringent. It yields its virtues partially to Water, and entirely to Alcohol, or Spirits, and may be used as a substitute for Cayenne, when that article cannot be obtained. In Flatulence, Indigestion, Nausea, or Sickness of the Stomach, and Want of Appetite, it may be usefully employed.

**Buchu Leaves**—(*Diosma Crenata*).—These are the leaves of a small shrub, a native of the southern part of Africa. The leaves are the parts used, and may always be found in drug-stores. The natives of South Africa manufacture an article called Buchu Brandy, by distilling the leaves with Wine, which they regard as a great remedy in all cases of Bowel Complaints, and diseases of the Kidneys and Urinary organs. No doubt it is good, for the Buchu leaf is one of our best remedies in certain affections of this kind.

MEDICAL PROPERTIES AND USES.—Buchu is mainly used for its diuretic properties, that is, for its favorable action on the Urinary organs. It is also somewhat stimulant and tonic, as well as anti-spasmodic. It is a useful medicine in all cases of Inflammation or Irritation of the Kidneys, Bladder, or Urethra; in the disease known as Gravel, and in cases where there is an excess of what is known as Uric Acid, which forms in the Urinary organs, and often leads to Gravel. It is good where there is a deficiency, also, of the secretion of urine, or any difficulty in passing it. The best way to use this article is in infusion or tea. ½ ounce of the leaves to 1 ounce may be added to 1 pint of Boiling Water, and after steeping a few minutes, may be taken in broken doses, or say half a teacupful at a time, so as to take the pint during the day, and may be repeated for two or three days, if necessary. In tincture, the dose is from one to two teaspoonfuls, three or four times a day.

**Burgundy Pitch.**—This is the concrete juice or turpentine, hardened and purified, which runs from the Norway Pine (*Abies Excelsa*), called also Norway Spruce Fir. The tree is a native of Northern Europe and Asia, a species of pine, growing often very large, and to the height of two hundred feet. Burgundy Pitch, as we find it in the drug-stores, is of a dark yellow color, hard and brittle, having rather an agreeable taste, slightly of turpentine, and a strong balsamic odor. A pure article, it is believed, is seldom met with in this country.

FRANKINCENSE.—The resinous exudation which runs from this tree, and forms in concrete *tears* or *lumps*, as you often see upon the Wild Cherry-tree and Peach-tree, is the Frankincense of commerce, and the same, no doubt, as that spoken of in the Scriptures, as one of the precious gums. It is mostly valued for its agreeable odor when burned.

MEDICAL PROPERTIES AND USES.—Burgundy Pitch is used mostly as a plaster, or an ingredient in plasters. It is good for Pains, Rheumatic Swelling of the Joints, Pains in the Chest; and in Whooping-cough, it is very good applied over the breast and stomach of children. To form a

plaster, it is to be melted and spread thin on soft, thin leather, and as it cools, thin, smooth, and spread it out with the warm blade of a case-knife, or spatula. To derive any decided effect from these plasters, they should be made large, so as to cover the breast, back, stomach, abdomen, side, or whatever part they may be applied to. A small Pitch Plaster is of but little account. They are to be worn for several days at a time—or as long as they will stick.

**Butternut**—(*Juglans Cinerea*).—Known everywhere as the White Walnut. It is a large tree, growing generally in rich bottoms, along streams, and is too common to need any further description. The inner bark of the tree is the part used, and is an excellent cathartic or purgative, mild, yet efficient, and leaving the bowels in a healthy condition. During the Revolutionary War, it was used extensively by the army physicians as a substitute for other Cathartics. The way to use it is to boil down a lot of the bark, and reduce it to a thick, soft extract, and then make into pills for use, by mixing, if necessary, a little of any kind of powder that would be suitable to thicken or harden it sufficiently, as powdered May Apple Root, or even Flour will do. Dose: as a purgative, three or four ordinary sized pills; as a laxative, in Costiveness and Dyspepsia, one or two pills a day. It is one of the safest and best purgative medicines known.

**Camphor**—(*Camphora*).—Camphor is a peculiar gum, or concrete substance obtained from an evergreen tree, called the Laurus Camphora, a native of China, Japan, and the East Indies. The Camphor of this country is mainly brought from the city of Canton, in China, and generally in a crude state, having to be purified before it is fit for use. The Camphor tree is highly aromatic, all parts of it yielding Camphor, the grains of the gum being found lodged in all the cracks and vacant places in the tree.

Medical Properties and Uses.—Camphor, in moderate doses, is sedative, anodyne, diaphoretic, and anti-spasmodic. In overdoses, it is an irritant narcotic. It is also a stimulant to the Nervous System, and in Wakefulness, Delirium, and those sudden jerkings and startings in low stages of Typhoid Fevers, it is a valuable remedy. Camphor has a strong, invigorating smell, and a hot, acrid taste. It is exceedingly volatile, and by exposure to the air soon loses its virtues. The Spirit or Tincture of Camphor is made by adding 1 ounce of the Gum to 1 pint of good Spirits. Camphor is very vivifying. The smell of it will relieve Faintness; and, when taken into the stomach, in the dose of eight or ten grains, it restores the powers of life. In Spasms, Convulsions, Hysterics, and Nervous Affections Camphor is a powerful sedative. In these diseases, it should be given in a dose of ten grains every three or four hours. In small doses, in such cases, it has but little effect. Camphor is given in Typhoid Fever, and in all diseases of Debility, to support the powers of life. Taken in the ordinary dose of ten grains, repeated every two or three hours, it will cure the most obstinate Headache. The Tincture of Camphor is an excellent appli-

cation to rub on the parts affected in Pains and Soreness of the Flesh and Bones. Applied to an inflammation upon the surface of the body it will resolve it, in many instances, better than any other medicine. It enters into many of the embrocations and liniments for Pains, Rheumatism, and the like, as well as into some valuable compounds for internal use. Spirits of Camphor is an article that should always be kept in the house. Gum Camphor, rubbed with an equal amount of Chloral, forms a thick liquid, which is a good liniment.

**Caraway Seeds**—(*Carum Carvi*).—Caraway is a garden plant, common to most of our gardens. The seeds are sold in markets and drug-stores, and much used by cooks and confectioners to season or flavor cakes and sweetmeats.

MEDICAL PROPERTIES AND USES.—Caraway Seeds are carminative and aromatic, and are excellent for flatulent Colic of children, in the form of an infusion. They are also used to correct or improve the taste of other less agreeable medicines. They also stimulate the Digestive Organs. The Oil of Caraway (*Oleum Carui*) is also used for the same purpose. Dose: Of the seeds, in powder, the same as Cardamom Seeds; of the oil, from two to ten drops, according to age, on a little Sugar; or for nursing infants, one drop on a little Breast Milk.

**Cardamom Seeds**—(*Alpinia Cardamomum*)—Cardamom Seeds are obtained from a plant or shrub, which grows from six to ten feet high and is a native of Malabar, a country on the west coast of British India. They possess a fragrant odor, and warm, pungent, aromatic, and pleasant taste. May be found generally in the drug-stores.

MEDICAL PROPERTIES AND USES.—Cardamom Seeds are aromatic, carminative, and what is called stomachic—that is, they promote the process of Digestion and strengthen the Stomach. They are chiefly used for Flatulency, or Wind Colic, either in infusion, tincture, or in substance. They are also used along with other medicines and compounds to render them more agreeable to the taste. They are often chewed for their pleasant taste and odor, and to destroy a bad breath. Dose: Of the powdered seed, from twenty grains to a drachm, and of the tincture, from one to two or three teaspoonfuls.

**Castor Oil**—(*Oleum Ricini*).—This is an oil made from the seeds or beans of a large, rank herb called the *Ricinus Communis*—known most commonly as the Castor-bean. In this country it grows from five to eight feet high; while in some countries, as in the East Indies and some parts of Africa, it is said to attain the height of thirty or forty feet. It is a native of India, but is extensively cultivated in this country. Castor Oil is to be found in all the drug-stores, and is too common to need a description.

MEDICAL PROPERTIES AND USES.—Castor Oil is a simple, mild, but certain cathartic, and may be given to persons of all ages and conditions. It is a very valuable cathartic, because of the mildness of its action, being

suited to infants, delicate females (especially during Pregnancy), and to certain conditions of the patient, where more active or drastic purgatives would be injurious, such as in Piles, Rupture, Inflammation of the Bowels, advanced stages of Dysentery, and the like. Dose: for a grown person, about one ounce, or two to three tablespoonfuls; for an infant, from one to two teaspoonfuls; 3 parts Castor Oil and 1 part Oil or Spirits of Turpentine, given in tablespoonful doses, every three to six hours, is an excellent remedy in Dysentery, or Bloody Flux.

**Catechu**—(*Acacia Catechu*).—The article of the drug-stores known as Catechu, is a dark or blackish colored gum, or hard extract, quite brittle. This gum is obtained from a small tree (the *Acacia Catechu*) which grows in the East Indies, especially in Hindostan. The extract will dissolve readily in Hot Water, and in Alcohol or Spirits. It may be found in any of the drug-stores.

Medical Properties and Uses.—Catechu is a pure and very powerful astringent, and is mostly used on that account. It is a good remedy in Chronic Diarrhœa, and copious Watery Discharges from the Bowels. On account of its powerful astringent properties, it is used as a local application, to dry up the Ulcers of Aphthous Sore Mouth, and for contracting the uvula or palate when it becomes elongated, or is "down." For these purposes, it may be applied in strong solution. It is also good to harden the gums, when they become soft or spongy; also good to apply in strong solution or tincture to old, indolent and foul Ulcers. An infusion is also good snuffed up the nose, to stop Bleeding at the Nose. In all cases where a pure and powerful astringent is wanted, Catechu may be relied upon, in almost any form. Dose: of the powder, from ten to thirty grains, or half a teaspoonful, repeated every hour or two, according to the urgency of the case; of the tincture, from a tea to a tablespoonful, repeated frequently.

**Cayenne Pepper**—(*Capsicum Annuum*).—Cayenne Pepper is said to be a native of South America; it is extensively cultivated in Jamaica, and other West India Islands, and is often to be met with growing in the gardens of this country. It grows usually about eighteen inches high, and the pods or peppers are small and slender, about an inch in length. There is a kind called Bird's-eye, or African Pepper, the pods of which are about the size and shape of a medium-sized red cherry, which is thought to be, if possible, stronger and better than the other species. Either kind, however, is strong enough.

Medical Properties and Uses.—Cayenne is one of the strongest, purest, and best stimulants known; it is also tonic and diaphoretic. It is very important to get the pure article, as there is a vast deal that is adulterated. In the West Indies, particularly at Barbadoes and Jamaica, they use it to help Digestion, in Debility of the Stomach, Colic, Pains of the Womb, obstructed Menstruation, Quinsy, all Diseases of the Throat, and Dropsical affections; made into a plaster with Honey, they apply it for

Rheumatism, Pain of the Joints, Gout, Swellings, etc. Outwardly, as a liniment, mixed with any kind of oily substance, and applied warm or hot as it can be borne, it is a fine remedy in Rheumatism. I have used the Cayenne gargle with great success in Scarlet Fever. Dr. Stephens asserts that he employed it also in about four hundred cases with surprising success. He also says that the ulcers in the back part of the mouth, soon cast off their sloughs, and began to heal; a genial, pleasant warmth was diffused throughout the system, and the vital powers soon assumed a more healthy condition. It was prepared in the following manner: 3 teaspoonfuls of Common Cayenne Pepper, and 2 teaspoonfuls of fine Salt; mix them together; pour upon them ½ pint of Boiling Water; strain, and add ½ pint of good Vinegar; when cold, give from half to a tablespoonful to a grown person, every half hour; or hour, reducing the dose in proportion to the age, and gargle the throat frequently with it. Every old lady in the country knows, or ought to know, that in sudden colds, a tea made of Cayenne Pepper is an excellent remedy; or 1 teaspoonful of Cayenne, mixed with Molasses or Honey, and taken in broken doses, is a valuable remedy in Coughs.

**Charcoal**—(*Carbo Ligni*).—Carbo Ligni, or Wood Charcoal, is a valuable medicine in certain cases. The Charcoal of sound, hard wood, such as Hickory, Ash, or Sugar-tree, should always be preferred for medicinal purposes. It can generally be found in the drug-stores, already powdered.

Medical Properties and Uses.—A good antiseptic and absorbent, and highly valuable in Dyspepsia and Sour Stomach, and especially where there is Fetid or Bad Breath. It is also extremely valuable in Chronic Dysentery. Dose: in powder, from one to two or three teaspoonfuls, in a little water, repeated according to the urgency of the case. In Acidity of the Stomach, Sour Belchings, Constipation of the Bowels, and in Nausea and Vomiting attending Pregnancy, from a half to a teaspoonful, once or twice a day, will be found highly beneficial. It is also good externally, applied to foul and gangrenous Ulcers, either by sprinkling it on, or combining it in, poultices. Charcoal is also a good Tooth Powder, and may be used either alone, or in combination with equal parts of powdered Cinchona and Orris Root. A little of this, applied once a day with a brush, will keep the teeth white and the gums in a healthy condition.

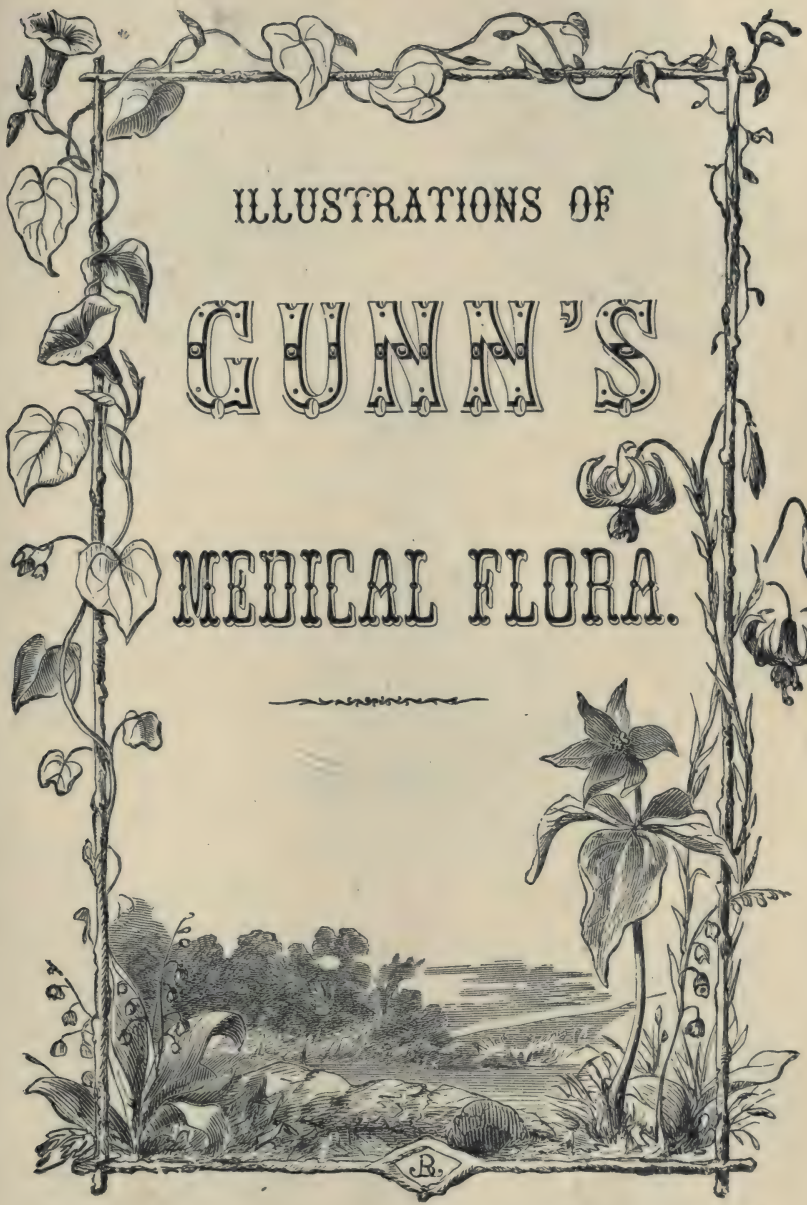
**Cinnamon**—(*Laurus Cinnamomum*).—Cinnamon Bark is found in all the drug-stores, and in country stores and groceries. It is the bark from a tree called the *Laurus Cinnamomum*, of about twenty to thirty feet in height, which grows in some parts of India, and in the islands of Ceylon, Borneo, etc. The bark is stripped from the small limbs and shoots, carefully scraped and dried for exportation. The best Cinnamon comes from Ceylon; though probably the most that is to be met with in this country is from some parts of China, and is generally inferior in flavor and strength to that from Ceylon.

Medical Properties and Uses.—Cinnamon is stimulant, carminative,

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# GUNN'S

# MEDICAL FLORA.





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and astringent. It is an important astringent in Dysentery, Diarrhœa, Summer Complaint, or Cholera Infantum, either alone or in combination with other articles, as Cloves and Allspice, in the form of decoction or syrup. A tea of Cinnamon is good for ordinary Colic, Cramp or Pain in the Stomach, and to check Vomiting and allay Nausea or Sickness at the Stomach. A strong infusion, or the tincture, is often serviceable, given in moderate doses, repeated every ten or fifteen minutes, in checking Hemorrhage from the Uterus, and in severe and painful Menstruation. Dose: of the powder, from ten to thirty grains; of the tincture, from a half to a teaspoonful; of the decoction, from one to two or three tablespoonfuls.

**Cloves**—(*Caryophyllus*).—Cloves are the dried buds or unexpanded flowers of a beautiful evergreen tree, called the *Eugenia Caryophyllata*, which grows in the East Indies, and other tropical climates, rising to the height of fifteen or twenty feet. The flower-buds are collected during the fall months, before they expand, and carefully dried in the shade. Cloves yield a highly aromatic essential oil, and contain also Tannin, and a resinous gum, which renders them a useful and agreeable astringent.

Medical Properties and Uses.—Cloves are a stimulant and aromatic astringent, and useful to allay Nausea and Vomiting, to relieve Flatulent Colic, to improve Digestion, as a healthy stomachic, and as an astringent; are also valuable as an ingredient in compounds for the cure of Diarrhœa and Dysentery. A little of the powdered Cloves, or of the Oil, is often combined with other medicines to prevent them from griping, or producing sickness at the stomach. Dose: of the powder, from ten to twenty grains; of the oil, from one to five drops.

**Colchicum**—(*Colchicum Autumnale*).—This is an annual plant, known most commonly by the name of Meadow Saffron, being found in meadows and low rich lands. It is indigenous to Europe, and grows plentifully throughout England. It has a bulbous root, and both the root and seeds are used for medicine. Alcohol, Wine and Vinegar extract its virtues; and it is most generally used in the form of what is called Wine of Colchicum, or in the Acetic or Vinegar Tincture.

Medical Properties and Uses.—Colchicum is a sedative cathartic, and also diuretic and emetic. It should never be used in large doses, as it acts, in such cases, as an acrid narcotic poison. It is seldom used for its cathartic effects, and never should be, but mainly in small doses for its diuretic and alterative effects, in cases of Rheumatism, Gout, Dropsy, and Palpitation of the Heart. The Wine of Colchicum is mostly used, and can generally be had at the drug stores. The dose is from twenty to sixty drops, two to three times a day, and to be continued for several days. You should commence with twenty drops, and increase three or four drops each day, till you reach sixty, or a moderate sized tea-spoonful. The Vinegar Tincture is made by add-

ing 1 ounce of the bruised root (or seeds) to 1 pint of good Vinegar, and let stand for two weeks. Dose: the same as the Wine Tincture. Useful in Chronic Rheumatism, Gout and Dropsy. The dose of the powdered root is one grain, increased gradually up to six or eight grains, three times a day.

**Collodion.**—This is a thick solution of what is called Gun-cotton (Pyroxyline), made by dissolving it in Ether. It is only used for sur gical purposes, that is, for applying to small Wounds, Injuries, and Abrasions of the Skin, Burns, and the like, where it becomes necessary to shield the exposed flesh. It is sometimes called Liquid Cuticle, because, when applied to any part of the surface of the body, as where a bit of skin has been knocked off the back of the hand, fingers, or in case of a Burn, the Ether almost immediately evaporates, leaving a solid, flexible, transparent crust, or artificial skin adhering, impervious to air and water, and which will, if the article is good, remain for several days. If the first coating is not thick enough, additional layers can be applied as soon as the previous one has become dry. As fast as one has become broken or worn off, renewed applications should be made, and in this way the injured part may be protected till healed up, and a new skin is formed. It is a very convenient and serviceable article for purposes of this kind. May always be had at the drug stores, put up in small bottles ready for use.

**Colocynth.**—This is the fruit of the *Cucumis Colocynthis*—a sort of trailing vine, somewhat resembling the Melon vine. It is sometimes called the Bitter Cucumber and Bitter Apple. The fruit is about the size and shape of an ordinary sized Pomegranate, or Orange, of a yellowish color when ripe. It is a native of Turkey, Western Asia, and some portions of Africa. The inside or pulpy portion is that which is used as medicine, and may generally be found in the drug stores in a dried condition, of a light grayish color, spongy texture, and about the size of a hen's egg; also in the form of a fine powder.

Medical Properties and Uses.—Colocynth is a powerful hydragogue cathartic, producing copious watery discharges from the Bowels It has a tendency to produce severe griping, and in large doses, or if continued too long, will produce inflammation of the mucous coat of the Bowels, and painful, bloody discharges. It should, therefore, be combined with other agents, when given as a cathartic, such as the powder or oil of Cloves, or Peppermint, to prevent griping; and a solution of Gum Arabic or Elm Bark, to prevent its drastic action on the mucous surface of the Bowels. Colocynth is a valuable medicine, however, and among the best cathartics in cases of Dropsy, as it tends to draw off the watery accumulations. It is also a valuable cathartic, especially if combined with a little Podophyllin, or powdered

May Apple Root, in cases of Effusion or Congestion on the Brain, on account of its powerful revulsive effect. In such cases it acts promptly, and generally gives immediate relief. It is good also to rouse the Liver, in cases of congestion or torpor of that organ. Its principal use is in what is called Passive Dropsies, Affections of the Brain, and inactive conditions of the Liver and Digestive organs. It may, however, be used in all cases where a purgative is needed. Dose: of the powder, from five to ten grains; of the extract, and compound extract, from three to six grains.

**Colombo African**—(*Cocculus Palmatus*).—This species of Colombo, which is that usually found in the drug stores, is a native of South-Eastern Africa, where it grows abundantly, and is called *Kalumb* by the natives. It is a sort of climbing plant, or vine, having a large, fleshy, tuberous root. The root is found in our drug stores, either in fine powder or in transverse slices of about a third of an inch in thickness, and looks very much like the American Colombo, prepared in the same way.

Medical Properties and Uses.—It is also a pure bitter tonic; thought to be stronger and better than the American, though I very much doubt it. It is useful in Dyspepsia and Weak Digestion, in convalescence from Fevers, and in all weak and debilitated conditions of the system. It is also a good tonic in Chronic Diarrhea and Dysentery. It is said to be very good to counteract the vomiting which troubles some females during Pregnancy. It is used most generally in combination with other tonics and aromatics, like the American Colombo, in Restorative Bitters. Dose: of the powder, from ten to twenty grains; of the tincture, one to two tea-spoonfuls; of the infusion or bitters, from a half to a wine-glassful, two to three times a day.

**Colombo American**—(*Frasera Caroliniensis*).– This is the American Colombo, a native of the Western and Southern States, with straight, erect stalk, rising to the hight of from four to six or seven feet, and found growing mostly in rich barrens, open woods, and meadows. The stalk is from one to two inches in diameter at the bottom, tapering gradually to near the top, when it terminates in several branches. The leaves are from three to ten inches long, and from one to three wide, and come out in whorls or bunches of five or six, opposite each other, around the stalk. These whorls or groups of leaves commence at the ground, and are from eight to twelve inches apart at first, gradually diminishing the distance between them to the top. The flowers are of a light greenish yellow or white, and appear in June and July. The root is triennial, that is, it lives for three years; and the stalk and flowers do not appear till the third

year; during the first and second years, there is only a bunch of long, slender leaves coming out at or near the ground. The root is large, long, spindle-shaped, and soft, very much resembling a good-sized Parsnip in shape and color. The best time to dig the root is in the fall of the second year, or spring of the third.

Medical Properties and Uses.—The Colombo Root, which is the part used, is a simple, mild, but very good tonic. When fresh, or green, it is slightly emetic and cathartic. It should be well cleansed, then cut in thin pieces, crosswise, of about a quarter of an inch in thickness, and carefully dried in the shade; and when used, powdered or crushed. It is most commonly used in the form of Restorative or Tonic Bitters, in combination with other articles, such as Gentian Root, and the like. It may be used in powder, in doses of twenty grains to a teaspoonful, two or three times a day, and in infusion, in doses of a half to a wine-glassful three times a day, as a tonic and stomachic.

**Conium**—(*Conium Maculatum*).—Known as Poison Hemlock and Poison Parsley. This plant is a native of Europe, but is found growing in many parts of the United States. It usually rises to the height of three or four feet, growing erect, with numerous branches, having a round, hollow, smooth stalk, slightly striped, and covered with dark purple spots. The lower leaves are large, coming out around the joints of the stalk, in a sort of sheath; the upper leaves, those attached to the joints of the branches are much smaller. The flowers are small, white, and numerous. A more particular description is unnecessary, as you will hardly ever use this article, unless furnished you by a physician, or procured at a drug-store.

Medical Properties and Uses.—The leaves and seeds are used, but mostly the extract, made from the leaves, and found in drug-stores. Conium is a narcotic poison, and, although a valuable medicine in certain cases, is to be used in small doses, and with caution. It acts specially on the Nervous System, quieting the nerves, inducing sleep, and decreasing the action of the heart. It is, therefore, considered a valuable agent in Enlargement of the Heart, in Palpitation, and Inflammation of that organ, by allaying the excitement and reducing the action It is principally used in cases of excited condition of the Nerves, or increased action of the Heart and Arteries. Dose: of the alcoholic extract, one to two grains, and may be repeated in three to six hours; of the ethereal extract (which is much the best), from one-fourth to half a grain. The common water-extract of this article is of no account. Either the alcoholic or the ethereal extract, or that made of the expressed juice, should be used. They are of a dark, rich green color, and can seldom be had except at first-class drug-stores.

**Coriander Seed**—(*Coriandrum Sativum*).—Coriander is a small annual plant, growing from one to two feet high, and is generally cultivated in the gardens of this country. It is a native, however, of Italy and Southern Europe. It flowers in June, and the seeds ripen in August. The green or

fresh plant, especially if rubbed or bruised, emits an unpleasant odor; but when the seeds become dry, they are very fragrant and agreeable, both in taste and smell.

Medical Properties and Uses.—The seeds only are used, and are stimulant, aromatic, and carminative. Used mostly to improve or disguise the taste of other medicines. They are also used by some to season meats, and are very good in Sausages. Dose: from twenty to forty grains, or a teaspoonful of the tincture.

**Cotton Plant**—(*Gossypium Herbaceum*).—This is a plant which produces the Cotton of commerce, the great staple of the Southern States, as well as of some other parts of the world. The Cotton Plant is said to be a native of Asia; but it is so extensively cultivated in the warmer latitudes of this country, and is so generally known, that any description of it here would be unnecessary. The bark of the root and the seeds are the parts used as medicine. It is but a few years since this article has been added to the list of medicinal plants, and its virtues, as such, are probably not very generally known.

Medical Properties and Uses.—The bark of the root is emmenagogue —that is, it promotes the Menses, and will bring them on when they are obstructed. It is also considered a valuable Parturient, to facilitate Parturition or Childbirth; said to be equally as efficient, more reliable, and much safer than Ergot. It is highly spoken of in these cases by those who have tested it. It will also produce Abortion, and, it is said, is extensively used by the slaves of the South for that purpose. It is used mostly in decoction—about 4 ounces of the bark of the root being boiled in 3 pints of Water down to 1 pint. As an emmenagogue, this quantity should be taken in the course of the day, in divided doses; as a parturient, it may be given in doses of about an ounce, or half a wine-glass, every twenty or thirty minutes. It is a good remedy in Dysmenorrhœa, or Painful Menstruation. As an emmenagogue, its use should be continued daily, until the desired effect is produced; and this may often be hastened by taking at night an active cathartic—say three or four pills, composed of 2 parts Aloes and 1 part Podophyllin, or Extract May Apple Root.

**Croton Oil**—(*Oleum Tiglii*).—This oil is imported from the East Indies, where it is made from the seed of a tree called the *Croton Tiglium*. It is the most powerful purgative in use. One drop will operate on the bowels severely in about forty minutes. It has a hot, burning taste, like the juice of Red Pepper; a drop taken upon the tongue will often move the bowels. This is a valuable medicine, and is used in obstinate obstructions of the Bowels; as in cases of severe Colic, and in cases where all other means have failed to procure a passage from the Bowels. It is a powerful medicine, and should be used with caution. The dose is from one to three drops, on a little Sugar, and may be repeated every two hours till it operates. But in most cases one dose, and even one drop, will be sufficient.

On account of the smallness of the dose, it is well adapted to cases where a large dose of medicine cannot be given, or where the patient cannot swallow, as in extreme Coma or Stupor, Mania, and the like. In such cases, a drop or two upon the tongue will generally be sufficient. It is applicable to cases where the Bowels are very torpid and inactive, in comatose conditions, and as a hydragogue cathartic in Dropsy. It is often used externally as a Rubefacient, or to produce Irritation and Vesication, instead of the ordinary Blister Plaster. A few drops rubbed on will be sufficient. It should never be used without a physician's prescription or order.

**Cubebs**—(*Piper Cubeba*).—Cubebs, which may always be found in the drug-stores, are the berries or fruit of a climbing herb, or vine, which grows wild in the woods of the East Indian Islands. They are also called Java Peppers. The berries are gathered before they are ripe and dried; when they are of a dark color, and about the size of the berries of the common Black Pepper. You will generally find Cubebs in the form of powder in the drug-stores.

Medical Properties and Uses.— Cubebs are an excellent diuretic; also mildly stimulant, carminative and expectorant. They seem to act specifically on the mucous surfaces, and tend to check mucous discharges, especially from the Urinary Organs; hence they are a great remedy in Gonorrhœa and Gleet, and are often used with benefit in Leucorrhœa or Whites. They speedily moderate the inflammation and discharge in Gonorrhœa, and in a majority of cases will cure it in less time than almost any other remedy. They possess what may be quite justly called a specific power, in most constitutions, especially when administered in the early and acute form of the disease. The sensible effects of this remedy are exceedingly mild, barely imparting to the urine its own peculiar odor, and promoting its quantity. From my own experience in the treatment of this disease, I can bear strong testimony in favor of this remedy. That it will cure every case, is not to be expected; but from the numerous trials I have made, I am of the opinion that greater reliance can be placed on it than any other medicine for the cure of this disease. In some cases, I have been compelled to combine with it Balsam of Copaiba, 1 teaspoonful of each, mixed, three times a day; but this was only in very difficult cases. A teaspoonful of the powdered Cubebs, three times a day, in a tumbler of water, is generally sufficient in this disease, at the same time keeping the bowels freely open with Epsom Salts, together with rest, and a very low and cooling diet. In some cases, but there are very few of them, Cubebs occasion a flushing of the face, burning heat in the palms of the hands and soles of the feet; the head and stomach being more or less affected. When this is the case, I reduce the dose one-half. This medicine should always be given in half a tumbler of Cold Water, stirred up well to make it mix. Flax-seed Tea, drank cold through the day, will be found a great assistant in the cure of this disease. In Gleet and the Whites in women, Cubebs

will be found highly beneficial, when used with cold Slippery Elm Tea. There is also an Oil of Cubebs, to be had at the drug-stores, which may be given instead of the powder. The dose is from fifteen to thirty drops, three times a day, in a little syrup or mucilage. Also an Extract of Cubebs, which may be used in the form of pills, generally in combination with as much Solidified Copaiba, giving two or three pills three times a day. A little Podophyllin or Extract of May Apple Root, sufficient to act gently on the bowels, will render them still better in Gonorrhœa.

**Digitalis**—(*Digitalis Purpurea*).—Known also as Fox-glove. It is an elegant plant, growing from two to four feet high, with a spike or top of beautiful bluish-purple flowers. It is a native of the southern portions of Europe, but is cultivated in gardens in this country.

Medical Properties and Uses.—In large doses, Digitalis is an irritant narcotic poison, and capable of producing Vomiting, Purging, Extreme Prostration, slow and feeble Pulse, Delirium, Convulsions, and Death. It must be used with care, if used at all. In moderate or proper doses, such as to bring the system safely under its influence, it increases the flow of urine, reduces the action of the heart to about fifty beats in a minute; attended usually with languor, slight nausea, dull pain in the head, and sometimes giddiness, confusion of the mind, and dimness of sight. When these attendant symptoms appear, the medicine should be discontinued for a few days. Digitalis is given in substance, that is, the powdered leaves, and in tincture. Dose: of the powder, from one to three grains; of the tincture, from ten to fifteen drops. The dose (of either) to be repeated two or three times a day, and should be gradually increased each day till the system is sufficiently brought under its influence. It is a sedative diuretic, and is most serviceable in cases of Hydrothorax, or Dropsy of the Chest, connected with Disease of the Heart or Kidneys. It is also used for Palpitation of the Heart, in severe Inflammatory Fevers, Mania, Epilepsy, and Spasmodic Asthma. It must always be used with great care, and the symptoms closely watched. Whenever its effects begin fully to appear, it should be stopped. In case of an overdose of Digitalis, or too great a sedative effect, the remedy (after giving an emetic, if any of it is supposed to remain in the stomach) is Brandy, Wine, and other stimulants, and Mustard Drafts to the Stomach, Wrists, and Ankles.

**Ergot**—(*Secale Cornutum*).—This is simply what is known as Blasted Rye; sometimes called Spurred Rye, from its resemblance to the spur of a cock. It is in grains, usually, as found in the shops, of a dark brown color, hard and brittle, from half an inch to about an inch in length, and about a fourth of an inch in diameter. It may be gathered at any time in the rye-fields, about harvest time, and can always be found in the drug-stores.

Medical Properties and Uses.—It is a powerful parturient and abortive, and should never be used until the child is expelled, and is then used for the purpose of causing the expulsion of the Placenta, or After-birth,

and producing a firm contraction of the uterus, which prevents Hemorrhages; as a rule, it is best not to give the Ergot until the Placenta is also expelled. It should always be given with caution, and the physician or midwife should first be certain that no mechanical obstacle to its use exists, for it generally acts speedily and efficiently. After Delivery, if the Placenta, or After-birth, does not come away, and the uterus seems indisposed to expel it—especially if there is Hemorrhage—it may also be given, and generally with advantage. The way to administer it is to put from one to two teaspoonfuls of the powdered Ergot into a teacupful of Boiling Water, stirring it, and after it has infused for ten or fifteen minutes, give of the infusion tablespoonful doses about every ten minutes, until Labor Pains are induced and the desired effect is produced; or a dose of fifteen to twenty grains may be given at once, first steeped in Hot Water. It acts very promptly, and usually in ten or fifteen minutes. Ergot has also been recommended in cases of Diarrhœa, Dysentery, Gleet, Leucorrhœa, Hysteria, and some other diseases; but it should never be taken by pregnant females, except as a Parturient, as it produces Abortion or Miscarriage at any stage of Pregnancy, especially if continued, or taken in doses of one or two teaspoonfuls.

Oil of Ergot.—There is an oil obtained from the Ergot, now considerably in use, and may be used for the same purposes. The dose is from twenty to thirty drops, given in warm Herb Tea, and repeated the same as the infusion, until the desired effect is produced. There are also preparations made so that it can be administered hypodermatically, so as to secure immediate action in case of a bleeding relaxed uterus.

**Fennel-seed**—(*Feniculum*).—The stock of the common Fennel, or *Feniculum Vulgare*, grows from two to four feet high, and is cultivated in our kitchen gardens. The seeds are used both as medicine, and for flavoring confectioneries and meats.

Sweet Fennel.—There is a kind called Sweet Fennel, also cultivated in this country, very similar to the common Fennel, except that it is considered sweeter and more agreeable.

Medical Properties and Uses.—Fennel-seed have a fragrant, agreeable odor, and warm, sweetish, aromatic taste, and are carminative and stimulant. Used medically to relieve Flatulent Colic, Griping, and the like, mostly in children. Also combined with other medicines to render them more agreeable. Used mostly in infusion or warm tea. Dose: of the powdered seed, from ten to thirty grains.

**Gamboge**—(*Gambogia*).—Gamboge is a sort of resinous gum, hard, brittle, and of a deep yellow or orange color. It is not very well settled as to what it is derived from, but it is supposed to be from a tree (the *Hebradendron Gambogioides*) which grows on the Island of Ceylon. It may always be had at the drug-stores.

Medical Properties and Uses.—It is a drastic hydragogue cathartic,

acting very powerfully, producing Nausea, Griping, and Copious Watery Discharges from the Bowels — on which latter account it is often used in cases of Dropsy. It is seldom used alone, however, being too drastic and severe. Combined with other purgatives, as Aloes, Podophyllin, Colocynth, and the like, its action is much modified. The dose is from two to six grains, in powder or pills.

**Gentian**—(*Triosteum Perfoliatum*).—This is a well-known plant, growing wild in most of the States, in dry, rich soils, in the woods, and around the edges of hazel thickets. It is sometimes called Feverwort, Horse Ginseng, and, on account of its berries, Yellow Gentian. Several stalks generally grow from the same bunch of roots; height from two to three feet; the leaves come out from the stalk opposite each other, and grow together, so that the stalk seems to pass through them, similar to the Boneset; flowers of a reddish color, followed by large yellow berries, which sit close to the stalk, at the origin and upper side of the leaf. The root is light-brown, long, round, tapering, and bunchy, and of a pungent, bitter taste. Both the root and berries are used as medicine.

Medical Properties and Uses.— Gentian Root is an excellent bitter tonic and restorative, laxative, somewhat stimulant, and in large doses cathartic. It is used mostly as bitters, along with other articles, and in the form of extract and pills. Useful in Intermittent Fevers, especially as a restorative tonic after the Fever and Ague have been broken. The ripe berries also make excellent bitters, tinctured in Whiskey or in Gin. Dose: of the extract, from six to ten grains. Seldom used alone. It is used as a vehicle for most dyspepsia prescriptions, such as the compound tincture of Gentian.

**Ginger**—(*Zingiber Officinale*).—This is the root of a plant said to be a native of Southern Asia, but is cultivated extensively in both the East and West Indies. It is to be found in all the grocery and drug-stores, either in the root or in powder, and is too well known to need description.

Medical Properties and Uses.—Ginger is an aromatic stimulant, diaphoretic and emmenagogue. It is also tonic and carminative. Useful in Flatulent Colic, Pains in the Stomach and Bowels, in Weak Digestion, in Colds, in Stoppage of the Menses from taking cold; to be taken freely in warm tea or infusion, generally on going to bed. It is very useful in Diarrhœa and Bowel Complaints, in combination with astringents, especially in Cholera Morbus. A syrup made of Ginger, Rhubarb, and Geranium, is also very good for Summer Complaint. The infusion is made by adding 1 pint of Boiling Water to ½ ounce of the powder, or bruised root. It should never be boiled, as it injures its strength and destroys its aromatic flavor. From a teacupful to half a pint or more of the infusion may be taken at once. Dose: of the powder, from twenty grains to a teaspoonful, owing to the purity and strength of the article. Ginger is a component part of the celebrated Composition Powders.

GINGER SYRUP.—This is made by bruising 2 ounces of Ginger Root, and covering it with 1 pint of Boiling Water; let stand twenty-four hours, then strain, and add 2 pounds of White Sugar and dissolve with a gentle heat, so as to form a syrup. It is used to give a pleasant flavor to Drinks, and also to destroy the taste of Unpleasant Medicines.

GINGER BEER.—Popularly known as Ginger Pop. Take of White Sugar, 2 pounds; Cream of Tartar, 2 ounces; bruised Ginger Root, 2 ounces; add two gallons of Boiling Water, and 1 teacupful of Hop Yeast; let stand twenty-four hours, and then bottle for use.

**Golden Seal**—(*Hydrastis Canadensis*).—Called also Yellow Root and Yellow Puccoon. The top of this article looks somewhat like that of the Ginseng, growing about the same height; the stalk a little larger, of a dark green color, forked usually at the top, each branch having two or three rough, dark green leaves, with a single white flower in the center, followed by a red berry, somewhat like the Raspberry, containing a number of small seeds. The root, which is the part used, is crooked, wrinkled, rough, and knobby, about half as thick as the little finger, of a bright yellow color inside, and of a strong but agreeable bitter taste. Found growing in rich, shady soils and hillsides, throughout the Middle and Western States.

MEDICAL PROPERTIES AND USES.—Golden Seal is a pure and very excellent tonic. It is not only a powerful tonic and restorative, but exerts an especial and healthy influence on the Mucous Tissues—is extremely valuable in Aphthous and other kinds of Sore Mouth, in Ulcerations of the Stomach and Bowels, in Chronic Dyspepsia. Dose: of the powder, from ten to twenty grains, once or twice a day; of the tincture, one to two teaspoonfuls; and may be used freely in Bitters, along with other bitter tonics.

HYDRASTIN.—This is the concentrated preparation made from the Golden Seal. It is in the form of a fine, crystalline yellow powder, and can generally be found at the drug-stores. Dose: from half a grain to one or two grains. Used for the same purposes as the root, and especially in combination with Quinine in the treatment of Bilious and Intermittent Fevers, or with Leptandrin in Chronic Dysentery, or Flux.

**Gum Arabic**—(*Acacia Arabica*).—Is the name of a small tree, growing in Arabia and other parts of Asia, from which the article known as Gum Arabic is obtained, and is to be found in all the drug-stores. It exudes from the bark and limbs of the tree, is of a white or light yellow color, and soon hardens on exposure to the atmosphere. The best qualities of the gum are of a light or pale yellow color, hard and brittle, semi-transparent, and, as found in our drug-stores, in small, irregular lumps. It dissolves readily in cold or warm water, but much quicker in warm, forming a mucilage, more or less thick, according to the quantity used.

MEDICAL PROPERTIES AND USES.—Gum Arabic is a nutritious, innocent,

and excellent demulcent; valuable in all irritations and inflammations of Mucous Surfaces, Bowels, and Urinary passages. Also good in Coughs, Hoarseness, and affections of the Bronchial Tubes. It is especially serviceable in irritating and inflammatory Diarrhœa and Dysentery, and in Inflammation of the Bladder, Strangury, Gonorrhœa, and Tenesmus. It is to be given in mucilage, and can be taken freely. Take 1 or 2 ounces of the gum, dissolve in 1 pint of Boiling Water, stir occasionally, and take at pleasure, cold. It will dissolve much quicker if powdered. The mucilage is often mixed with other medicines, especially with Cough Mixtures; and is often used in the manufacture of pills, to make the mass harden and stick together better.

**Gum Guaiac.**—(*Guaiaci Resina*).—This is a gum resin, or concrete juice, obtained from a tree called *Guaiacum Officinale*, but more commonly, perhaps, *Lignum Vitæ*, which grows in the West Indies, especially in Hayti and Jamaica. It is found in the drug-stores, in hard, black or dark greenish lumps, or large cakes; is brittle, easily pulverized, and readily dissolved in Alcohol or Spirits.

Medical Properties and Uses.—Guaiac is a stimulant, alterative, and diuretic, and a great Rheumatic remedy. It is a hot stimulant, something like Cayenne; opens the pores, increases the flow of urine, and warms up the system generally. It is usually taken in tincture, in doses of one to three or four teaspoonfuls, two or three times a day. A very good way to use it for Rheumatism, is in the form of bitters—that is, say 1 ounce of the gum, powdered, put into 1 quart of good, old Rye Whiskey, and taken in ordinary-sized doses, three or four times a day. The dose of the powder is from five to twenty grains.

**Gum Myrrh**—(*Balsamadendron Myrrha*).—This is a resinous gum, brought from the East Indies, and is obtained from a small, shrubby tree, growing in the countries about the Red Sea. It is of a reddish yellow color, hard and somewhat brittle, of a slightly bitter taste, and of a strong, rich, agreeable balsamic odor.

Medical Properties and Uses.—It is a tonic, emmenagogue, and powerful antiseptic, as well as somewhat stimulant and expectorant. It is valuable in Malignant Fevers and Conditions of the system, and in all cases where there is a tendency to Gangrene It is also a valuable tonic emmenagogue, or for stoppage of the Menses, especially in what is called Chlorosis or Green Sickness—a disease which afflicts young females, on account of the stoppage or imperfect development of the Menses. In such cases it is generally combined with other articles, as Aloes and Carbonate of Iron, or Muriated Tincture of Iron; but it is good alone. Generally given in tincture, which is made by putting from 2 to 4 ounces of the gum, powdered, into 1 quart of good Spirits. Dose: from one to three teaspoonfuls, three times a day. Dose of the powder: ten to twenty grains. It is highly valuable as a local application in all spongy and gangrenous

conditions of the Flesh, in Bleeding Gums, Aphthous Sore Mouth, Gangrenous Ulcers, and in Wounds and Injuries where there is danger of Gangrene—as a wash, or mixed in a poultice. Tincture of Myrrh and Aloes is one of the best applications in the world for fresh Cuts and Wounds.

**Hops**—(*Humulus Lupulus*).—The Hop plant, or vine, is well known, being more or less cultivated in all parts of the country.

Medical Properties and Uses.—Hops are tonic, sedative, and nervine, and when applied externally, exert a very soothing influence. They are often used as a fomentation; that is, boiled in Water and Vinegar, either alone or with other Bitter Herbs, and applied as warm as can be borne to the stomach, abdomen, or other parts of the body, to relieve Internal Pain and Inflammation, and are extremely good for such purposes. A pillow stuffed with Hops, it is said, will induce sleep, when other things fail. The Tincture of Hops, or of Lupuline (which is the fine yellow, granular powder, contained within the leaves or scales of the Hop-heads), is an excellent anodyne, preferable to Opium in many cases, and is said to be extremely valuable to relieve After-pains, in Childbirth; and in Wakefulness, Nervous Inquietude, Anxiety, Delirium Tremens, and the like, because it may be taken freely without injuring the stomach, or producing Constipation of the Bowels. A strong tea or infusion might be used instead of the tincture. The tincture of Hops (or Lupuline) may be given in doses of two to four or five teaspoonfuls, and the tea in ordinary quantities.

**Hyoscyamus**—(*Hyoscyamus Niger*).—Called also Black Henbane. This plant is a native of Europe, but is found growing now in many parts of the Northern States, but is not generally known or easily described. It is generally used in the form of extract, which can always be had at a drug-store.

Medical Properties and Uses.—It is one of the narcotic poisons, and when used at all must be used with caution. In proper doses, it is anodyne and anti-spasmodic, and is given to relieve pain, to quiet nervous excitement, induce sleep, overcome spasms, and the like, being preferable to Opium in cases where you wish to avoid constipating the bowels, as it has rather a laxative effect than otherwise. It generally agrees with the stomach better than Opium. It is applicable in Neuralgia, Rheumatism, Nervous Coughs of long standing, Spasmodic Affections, and irritable and inflamed conditions of the Urinary Organs. Dose: of the powdered leaves, five to ten grains; of the tincture, from thirty to sixty drops, or a teaspoonful; of the alcoholic extract, from one to three grains, which may be increased gradually up to ten grains.

**Iceland Moss**—(*Cetraria Islandica*).—This is a small plant, only growing one or two inches high—a sort of Moss, of a grayish or light brown color—a native of Iceland, and some of the more Northern countries of Europe. It may also be found in our drug-stores.

Medical Properties and Uses.—It is a tonic demulcent, and also nutritious. As a demulcent and soothing remedy, it is given in Coughs, Bronchial Affections, and Consumption; and, in low and exhausted conditions of the system, it is valuable also as a nutriment. It is good in Dyspepsia, on account of its tonic properties. The way to use it is in mucilage, which is made by covering a handful of the Moss with from 1 pint to 1 quart of Boiling Water; let stand two or three hours; then strain, and sweeten with honey or molasses, adding a little Lemon Juice, if you like, and a bit of the Lemon Peel—to be used freely, at pleasure.

**Indian Hemp**—(*Apocynum Cannabinum*).—This is one of several species of plants called Indian Hemp. It resembles very much the *Apocynum Androsæmifolium*, or Bitter Root, but with proper care may easily be distinguished. They both grow in the same kind of soil, often together, and both have a tough bark, like Hemp, and pods somewhat alike; but may be distinguished by their leaves and flowers. The leaves of this species are oblong and sharp, or pointed, at both ends, and of a whitish, downy appearance on the lower side; while those of the Bitter Root are pointed only at the outer end, and quite round or blunt at the end next the stalk—are not so long as the other, and are dark, smooth, green on both sides. In this species the flowers are greenish-yellow, slightly pink or purple inside, while those of the Bitter Root are white, tinged with red. The whole plant, when green, is also filled with a milky juice, the same as the Bitter Root. Grows throughout the United States, in low moist lands and meadows, generally about two feet high. The root is the part used.

Medical Properties and Uses.—It is diuretic, cathartic, emetic, and diaphoretic. The powdered root very much resembles Ipecacuanha in appearance, and also in its action as an emetic—hence it is sometimes called American Ipecac. It is seldom, however, used as an emetic, but mostly for its diuretic and cathartic effects, in Dropsies, in which it is a most admirable remedy. It acts as a hydragogue cathartic, producing copious watery stools, and also greatly increases the secretion of the Kidneys, and a flow of Urine. The best way to use it for these purposes, is in the form of a decoction. One ounce of the powdered or bruised (dry) root may be steeped for an hour or two in 1 pint of Water, and the patient take of the decoction from two to four tablespoonfuls three or four times a day. It is also used in extract, the dose of which is from three to six grains, once or twice a day. In Dropsy, it is to be continued for several days at a time.

**Ipecacuanha.**—Commonly called Ipecac. It is a small shrubby plant, indigenous to Brazil and other parts of South America, growing usually in rich, moist, shady soils. The root is the part used, and may always be found in our drug-stores, either in fine powder or in the crude root.

Medical Properties and Uses.—In large doses, that is, thirty to forty grains, it is emetic; in small doses, of three or four grains, repeated every hour or two, it is diaphoretic and expectorant; and again, in still smaller

doses, said to be tonic. It is one of the best and safest emetics we have. From ½ to 1 teaspoonful in ½ pint of Hot Water, taken two or three times, within ten to twenty minutes, is a good, thorough, and easy emetic. In Fevers and Inflammatory diseases, Ipecac, given in diaphoretic or small doses—from one to three grains—is of great service. In Inflammation of the Bowels, Stomach—indeed any of the internal organs—it will be found an excellent agent, given in small doses, on account of its sedative and diaphoretic effects. In still smaller doses—from ½ to 1 grain, two or three times a day—it is said to be good in Dyspepsia, acting as a tonic, increasing the appetite and improving the digestion. I have found minute doses, of half a grain or less, very efficient in checking Vomiting, given at intervals of an hour; and in Dysentery, a powder composed of 1 grain, each, of Ipecac and Leptandrin, ½ grain of Podophyllin, and ⅙ grain of Morphine, given every four to six hours, will be found an admirable remedy. After three or four of these powders have been given, the Podophyllin should be left out, and the others continued. The Wine of Ipecac, or the tincture, which can always be had at the drug-stores, is an excellent ingredient in Cough Mixtures. It is one of the constituents of Dover's Powder.

**Jalap**—(*Ipomœa Jalapa*).—Jalap will generally be found in the drug-stores, in the form of a fine powder. It is the powdered root of a plant, or rather sort of vine, which grows wild in Mexico, principally in the State of Vera Cruz, and near the town of Xalapa, from which it takes its name.

Medical Properties and Uses.—Jalap is an active, brisk cathartic, and somewhat drastic, producing copious watery discharges from the Bowels. It is, if taken alone, apt to gripe, and sometimes produce nausea and vomiting. Its tendency to gripe and to sicken the stomach, can always be overcome by adding to the dose three or four grains of pulverized Cloves; or a little Cayenne or Camphor will do. It is used mostly as a hydragogue cathartic, in Dropsical conditions, and in Fevers where it is desired to lessen the quantity of the circulating fluid. Dose: of the powder, as a cathartic, from twenty to thirty grains; of the tincture, from two to four teaspoonfuls. Where the full hydragogue effect is desired, add a heaping teaspoonful of Cream of Tartar to the dose. Jalap is not so much used now as formerly, the May Apple Root, which is very similar in its action, and probably better, and its concentrated extract, Podophyllin, having nearly superseded it.

**Jessamine**—(*Gelseminum Semperviren*s).—This is the Yellow Jessamine, growing abundantly in many of the Southern States, and known also by the names of Woodbine and Wild Jessamine. It is a climbing vine, growing very luxuriantly, climbing upon fences, hedges, bushes, and whatever is in reach, and forming an agreeable shade, and, when in bloom, filling the atmosphere around with an agreeable, rich perfume. It grows wild, but is extensively cultivated in the gardens for its beauty, fragrance, and

the shade it affords. The blossoms are yellow, which appear during the early spring months.

Medical Properties and Uses.—The root is the part used, and then in the form of tincture. It is considered a most valuable Febrifuge, that is, Anti-fever remedy; and one of the most powerful relaxing and anti-spasmodic medicines known. Many physicians consider it the most valuable and certain remedy ever yet discovered to subdue and break up a Fever, no matter what kind of fever it is, whether Bilious, Continued, Intermittent, Typhoid, or any other; which it generally will do in from six to twenty-four hours; equalizing the circulation, producing perspiration, and allaying nervous excitement, seeming, indeed, to regulate the operations of the whole system, and a healthy action of all the secretions—without producing either sickness of the stomach or purging, or any injurious effects whatever—unless, indeed, it should be given in too large doses, when it is liable to produce too great relaxation. It may be given at any stage of the disease, and along with or after any other treatment. Its usual effects are general relaxation, even to complete prostration sometimes, double-sightedness, and, perhaps, inability to open the eyes for a time; but these effects will soon pass off, leaving the patient refreshed, free from fever or pain. The dose of the tincture is from ten to thirty drops, and even as high as fifty drops, or a teaspoonful, have been given at once in high grades of Fever, and to be repeated every two hours till the proper effect is noticed—that is, relaxation, double vision, and falling of the eyelids, and perspiration—when it is to be discontinued. It may be given in a little Water; and always, in case of Fever, from 3 to 10 grains of Quinine are to be combined with the first two or three doses. This is especially necessary in all cases of Remittent or Intermittent Fever, otherwise it will return again. Two or three doses are generally all that will be required, if moderately large. The Gelseminum Tincture is principally used in Fevers, but has been found efficacious in Nervous Headache, Pneumonia, Leucorrhœa, St. Vitus' Dance, Toothache, and in all forms of Neuralgia or Nervous Excitement and Irritability, and Tetanus, or Lockjaw. In this latter affection, as well as in all cases of Spasm or Muscular Contraction, it may be relied on as infallible, if given to complete prostration. Care must be taken, however, not to carry it too far, or give too much, or continue it too long, as danger, in such case, might occur.

**Juniper Berries**—(*Juniperus Communis*).—These are the berries of an evergreen shrub, or bush, native of Europe, though found growing in some parts of this country. The berries, when dried, are black, somewhat shriveled, and about the size of a small Pea. May be found in all the drug-stores.

Medical Properties and Uses.—Both the berries and the oil, which is obtained from the berries, are used, and are diuretic, carminative, and moderately stimulant. The berries are mostly used along with other articles, in

the form of infusion, or bitters, to render them more diuretic, or to modify the action of more powerful diuretics. As a diuretic, the Oil is mostly used, and is considered valuable in Dropsy; also in Affections of the Bladder, as well as some other affections, such as Scurvy, Skin Diseases, and, in combination with the Oils Copaiba and Cubebs, in Gonorrhœa, Leucorrhœa, and the like. Dose: of the oil, from three to six drops, in Mucilage, Spirits, or Mint Tea.

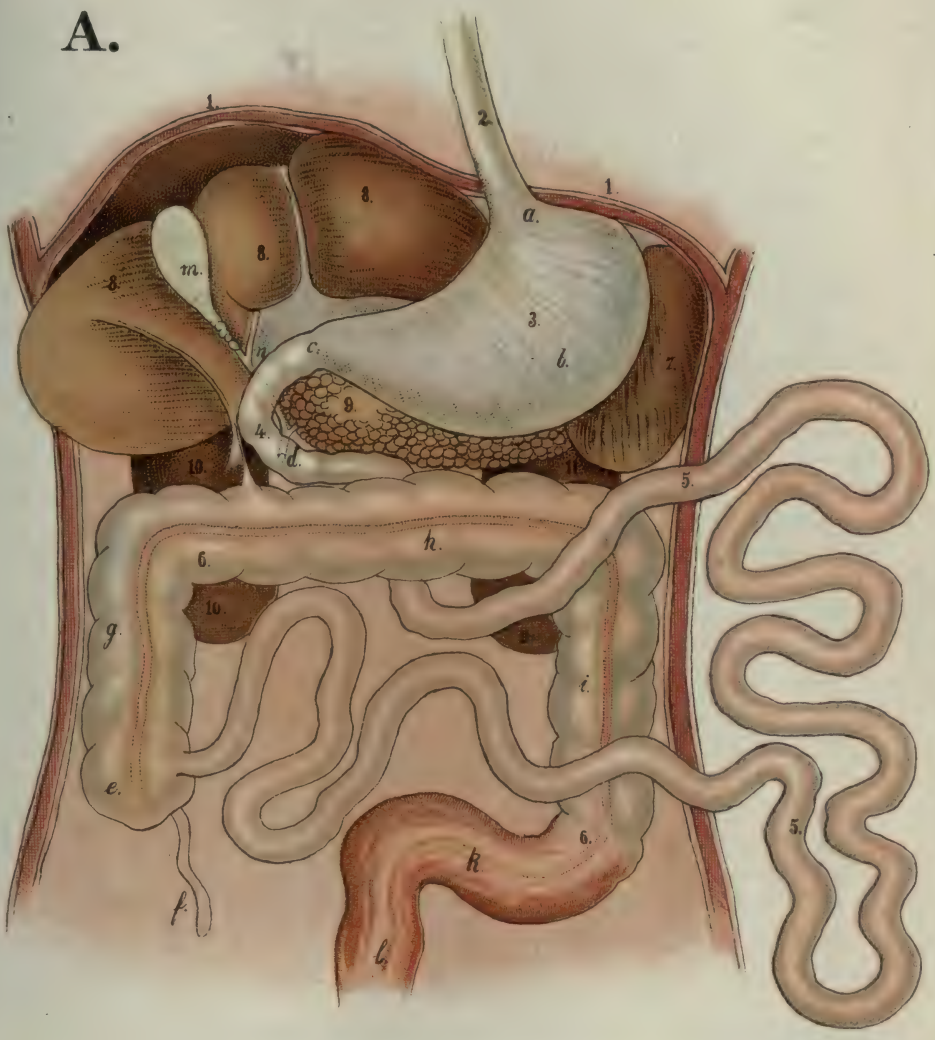
**Kino.**—This is a dark red, brittle gum, obtained from a large tree which grows in Hindostan, called the *Pterocarpus Marsupium.* Gum Kino may be found in all the drug-stores.

Medical Properties and Uses.—It is a pure and very powerful astringent, fully as good in most cases as the Catechu, perhaps in some respects better, and may be used in all cases where a pure astringent is wanted. It is useful in Diarrhœa, Dysentery, in Hemorrhage from the Womb, and in Leucorrhœa; also good as an injection in Leucorrhœa, and as a gargle in Sore Throat and Mouth. It is mostly used in the form of tincture, or dissolved with other preparations for Diarrhœa and Looseness of the Bowels. It is a pure and innocent astringent, and may be combined with any preparation for Bowel Complaints. Dose: of the powder, from ten to thirty grains; of the tincture, from one to two teaspoonfuls.

**Liquorice**—(*Glycyrrhiza*).—The Liquorice plant is a native of Southern Europe and Asia. The root is the part used in medicine, and can generally be found in the drug-stores—either the root or the extract, which is just as good, and in many cases better. It is of a peculiar, rather pleasant, sweetish, demulcent taste, and generally liked by children.

Medical Properties and Uses.—Liquorice is a demulcent expectorant, and very much used in Coughs, and Affections of the Lungs, Bronchial Tubes, as well as in cases of Mucous Irritation of the Bowels and Urinary Organs. It is most usually given in combination with other medicines, as it serves to give them a sweet and agreeable taste, as well as to aid in their medicinal action. A decoction of the root may be made, and used either alone or with other medicines; or the extract may be dissolved in Warm Water, which amounts to the same thing. The extract is very good, used as a Cough Candy, to allay Coughs and Mucous Irritation of the Lungs. It can be used freely. It is an excellent laxative, used as the Compound Liquorice Powder.

**Lobelia**—(*Lobelia Inflata*).—Called also Indian Tobacco, Wild Tobacco, Emetic Weed, Colic Weed, Eye Bright, etc. This plant is common throughout our country; it grows one or two feet high; the stem is hairy; the leaves are tapering, hairy above and below, bordered with small irregular teeth; the flowers are palish blue, thinly scattered along the branches and upper part of the stem, and continue to bloom from July till late in autumn. The blossoms are followed by small pods or bole vessels—somewhat like the shape of an egg—which contain a large quantity of very




**A**—Intestines (diagram).

1. The diaphragm.
2. The oesophagus.
3. The stomach.
   - *a*. Orifice.
   - *b*. Fundus.
   - *c*. Pylorus.
4. The duodenum.
   - *d*. Place of junction of the bile and pancreatic juice.
5. The small intestine.
6. The large intestine.
   - *e*. Blind-gut.
   - *f*. Wormiform appendix.
   - *g*. Ascending colon.
   - *h*. Transverse colon.
   - *i*. Descending colon.
   - *k*. Roman S.
   - *l*. Rectum.
7. The spleen.
8. The liver (exposed).
   - *m*. Gall-bladder.
   - *n*. Common gall-duct.
9. The pancreas.
10. Right kidney.
11. Left kidney.

small black seeds; when you break the plant, a milky juice comes out. This is the plant so much used by Botanical Doctors, called Thomsonians, supposed to have been discovered by Samuel Thomson, whose followers employ it for almost every disease as a vomit; but this indiscriminate use of the plant is wrong. Late discoveries in Europe, by some of the most distinguished physicians, prove, beyond doubt, that it is one of the most valuable of all our medical plants, when properly used. It was discovered long before Thomson, by Lobel, a noted Botanist, and named after him, although Thomson deserves much credit for bringing it into general use. The facts are these: The Penobscot tribe of Indians, from traditionary evidence, used it in the form of a tea to produce vomiting, and as their unfailing remedy in Colic, hence the name of Colic Weed. The New England people obtained this information from the Indians, and used it in various complaints, but particularly in Colic, and considered it perfectly safe and harmless. I have traced it back to the year 1772, and with the exception of the Penobscots, I find the American aborigines had no knowledge of its properties or virtues. I have thus minutely described this plant, because the medical men have, for the last fifteen or twenty years, prejudiced the public mind against the use of it, by saying it was a poison. Like everything else, raise the cry of mad dog, and everyone heaves a stone. Medical men, however, are becoming fully satisfied that they have not given this valuable plant a sufficient trial, so as to prove its virtues. I see, however, that in the last edition of the *United States Dispensatory*, they have prudently omitted the word "poisonous." The truth is, that testimony is decidedly in its favor from some of the most distinguished physicians, who bear witness to its great value in Spasmodic Asthma, Croup, and other complaints, who have given it a fair trial, without prejudice, in all the London Hospitals. The following physicians have pronounced it, in their lectures, to be the most efficacious remedy for Asthma, that has yet been employed: Dr. Elliotson, Dr. Sigmond, Dr. Kinglake, and many others. In the *Gazette of Health*, the *London Lancet*, and the *Medical and Surgical Journal*, will be found a series of important facts upon the great value of this plant. The Ethereal Tincture of Lobelia, which can be purchased at any drug-store, relieves, almost instantaneously, the most violent Asthmatic paroxysms. The celebrated Dr. Drury gave it a trial during a most severe fit, in which the breathing was distressingly oppressive; it instantly relieved him, and he has ever since remained comparatively free from the complaint. Dr. Cutler, a distinguished physician in the United States, makes the following remarks: "It has been my misfortune to be an Asthmatic for about ten years. I have tried a great variety of remedies, with but little benefit. Last summer I had the severest attack I ever experienced, for eight weeks. The Tincture of Lobelia gave me immediate relief, and I have been entirely free from the complaint since that time. My breathing, at one time, became so difficult I thought

I should suffocate. I took a tablespoonful of the Spirit Tincture, made of the fresh plant; in three or four minutes, my breathing was as free as it ever was, but I felt no sickness at the stomach. In ten minutes, I took another spoonful, which occasioned sickness. After ten minutes, I took the third, which produced sensible effects on the coats of the stomach, and very little vomiting, with a kind of prickly sensation through the whole system." Dr. Eberle, a Professor of Medicine, in his *Materia Medica*, observes: "I have had several very striking examples of the good effects of Lobelia in Asthma. I have known the most frightful paroxysms completely allayed in less than fifteen minutes, even when the disease depended upon organic affections of the heart. As an emetic, I have employed it in several cases of the Croup with great benefit." Dr. Samuel Thompson says he cured a woman of the Asthma by Lobelia tinctured in good Spirits, who had not been able to lie in bed for six months. I do know that the Ethereal Tincture, or a tincture made of Lobelia and Ether, has, in my practice, acted like a charm in many cases of Asthma. There are two sorts of tincture in the drug-stores—the one made with Spirits, the other with Ether.

MEDICAL PROPERTIES AND USES.—Lobelia is emetic, relaxant, expectorant, anti-spasmodic and sedative. In small doses, it is nauseant, producing a sort of burning, prickling, disagreeable sensation in the throat; and if the doses are continued or sufficiently increased, produces relaxation of the muscular system, languid pulse, perspiration, and for a time oppressive prostration. In sufficient doses, say of twenty to thirty grains of the pulverized seeds or leaves, it is a prompt, safe, and very efficient emetic, followed usually by general relaxation of the system, and often more or less complete prostration; but always without danger, the patient often dropping into a sweet slumber, awaking shortly after greatly refreshed, and not unusually with a desire for something to eat! It is unquestionably the best, most efficient, and safest emetic known. In Acute Pleurisy, it is an admirable remedy. It should, in such case, be given in broken doses at first for awhile, till the system is gradually brought under its influence; then in sufficient doses to produce thorough vomiting and relaxation. It is best, at first, to combine with it some Cayenne. As an expectorant, Lobelia will be found of great use, and should generally be combined, more or less, with all Cough Mixtures. As an emetic, it may be used alone, or combined with an equal portion of Ipecac. A heaping teaspoonful of the powder is to be put into a cup or bowl, with half a pint of hot water (near the point of boiling, but not quite scalding, as scalding injures its strength), and after standing fifteen or twenty minutes, it is ready for use. It may be given then in half-teacupful potions, at intervals of five or ten minutes. The Lobelia should be continued till the patient has vomited two or three times thoroughly; after which, some thin Gruel should be taken. The tincture can also be used as an emetic, and this is generally

the best to use for children. It can be sweetened and made quite palatable. The dose of the tincture for a grown person, as an emetic, is from one to two tablespoonfuls, repeated as before directed; and for children, about a teaspoonful—always using freely some Warm Tea. In sudden attacks of Croup, there is nothing like the Tincture of Lobelia, given in doses of ten or twenty drops to a teaspoonful, and repeated till relief or thorough vomiting is obtained. It can be given in Syrup or Honey. The throat and chest may also be bathed with the Tincture, or with Spirits of Turpentine. In using the tincture as a mere expectorant, for Coughs and the like, a grown person may, commonly, take from a half to a teaspoonful; but I should say that half a teaspoonful is the ordinary dose that people can bear without sickening; and in using the Ethereal Tincture, from ten to twenty drops. Ten drops, in many persons, produces sickness. In Asthma, there is nothing to compare with it. When the Spirit Tincture is used, give commonly a teaspoonful in a wine-glass of water, and repeat every half-hour during the paroxysm, or till sickness or vomiting is produced. It appears that its efficacy is much enhanced and insured by its sickening agency. In some instances of difficult breathing, it proves beneficial, without occasioning nausea, or sickness; but when sickness results from its use, so far from that occurrence being a reason for discontinuing it, an additional inducement is afforded for pressing it, till full vomiting and the consequent relief is obtained. No apprehension need be entertained of its acting deleteriously; it may, therefore, in all cases of Oppressed Respiration, or Apparent Suffocation, especially when of the Spasmodic character, be fearlessly administered till full vomiting be produced, when the desired benefit is usually obtained. The leaves and seeds of Lobelia possess the active properties, and they lose a portion of their virtues by exposure to the light; hence they should be preserved in confined places. When the herb is required for use, it should be collected in July or August, before the leaves begin to fade, and spread thinly in a chamber or loft to dry, previously separating the stems from the roots. The air should be admitted into the apartment in the daytime, and excluded at night, if the atmosphere is damp. If it is desirable to obtain the seeds, the plant should not be gathered till the leaves begin to have a yellowish appearance, which will generally be in the latter part of August or the first week in September. After the herb is dried, the seeds are to be shaken from the pods and passed through a fine sieve, to free them from the pods and dirt.

Tincture of Lobelia—How Prepared.—Take of the pulverized Leaves, $\frac{1}{4}$ pound; Water and Alcohol, equal parts, 1 quart; infuse, or soak, for ten days in a closely-stopped bottle.

Tincture of the Seeds.—Take of the pulverized Seeds, 4 ounces; Water and Alcohol, equal parts, 1 quart; infuse, or soak, for ten days.

Tincture of the Green Herb.—Collect the Herb when in blossom,

before the leaves begin to fade; pound in a mortar, till reduced to a pulpy mass; add Malaga, Madeira, or Native Wine, sufficient to cover it; infuse or soak, for a week or ten days, and strain and press out.

To cause vomiting, the dose for a grown person is a tablespoonful, which should be given in Warm Tea, and repeated every twenty or thirty minutes till the stomach is sufficiently cleansed. The dose for a child two years old, is from a half to a teaspoonful, repeating as above, and two teaspoonfuls for one, ten or twelve years old.

**Male Fern**—(*Aspidium Filix Mas*).—Male Fern is one of a peculiar sort of plants, having no stalk, but a number of large feather-like leaves or fronds ascending from the root, from one to three feet high. It grows mostly in shady pine-woods, in the Atlantic States, from New York to the Carolinas. The root is the medicinal part, and requires to be carefully dried, then immediately pulverized and kept in tightly-closed bottles, or it will lose its virtue. There is an ethereal oil obtained from it, by distilling in Ether, which is the form in which it is now mostly used, and which can generally be had at the drug-stores.

Medical Properties and Uses.—It is only used as an anthelmintic, or Worm medicine, and then only for the Tape-worm. It is said to be the best remedy for this species of Worm that is now known. The proper way of administering this Oil, in such case, is to give from twelve to twenty drops at night in a little sweetened Mucilage or Syrup, and the same quantity again in the morning; two or three hours after the second dose, give a purgative of Castor Oil, or other active cathartic, and the Worm, if dead, will pass away, without any unpleasant symptoms. Should it fail, the doses, somewhat increased, are to be repeated. The dose of the powder is about two teaspoonfuls, to be given in the same way as the oil. Remember that in excessive doses this drug is poisonous.

**Manna.**—Manna is the concrete juice, a sort of candied gum, of a sweetish and pleasant taste, obtained from a small tree growing in some of the southern countries of Europe, especially in Calabria and Sicily; known in Botany as the *Ornus Europæa*, and also by the common name of Flowering Ash. Manna is to be found in the drug-stores, in the form of a soft candy-like gum.

Medical Properties and Uses.—It is a mild and gentle laxative, that is, a gentle cathartic, and used mostly for children, on account of its pleasantness to the taste, and by Pregnant women, especially where there is a tendency to Piles. It is also often dissolved with other medicines, especially Worm medicines, to render them more agreeable to the taste. Children will eat it the same as Candy. The dose, as a cathartic, is from one to two ounces for a grown person, and from a drachm to half an ounce for children.

**May Apple Root**—(*Podophyllum Peltatum*).—Called also Mandrake, but known all over the country by the common name of May Apple. It

grows probably in all the States, in rich woods, and generally growing in patches, and quite abundant wherever found. It has a smooth stalk or stem, about twelve to eighteen inches high, forked at the top with two or three large, irregular leaves, a large white blossom in the fork of the stem, which usually appears early in May, succeeded by an apple or fruit, round, smooth, and when ripe, soft, pulpy, of a yellow color, about the size of a small hen's egg, juicy, slightly acid, and pleasant to the taste, and is very much liked by some persons.

Medical Properties and Uses.—The root is the part used, and is a certain, powerful, and very valuable hydragogue cathartic. Valuable in active doses in all forms of Dropsy, and internal or local Inflammations, where you wish to produce copious Watery Discharges from the Bowels, and in that way draw off the excess of fluid in the system, lessen the circulating fluid, or produce a revulsive effect, as in case of Inflammation of the Brain. The powdered root was formerly taken as a cathartic; but latterly, since the introduction of Podophyllin, which is made from this root, the substance is not so much used. The soft extract is also employed, and is an excellent form, especially if you wish to make it into pills. It is also used in tincture. In small doses, that is, what is termed alterative doses, the May Apple is an excellent hepatic, or Liver Medicine, acting as a stimulant to the Liver, as well as the whole Glandular system. The dose of the powdered root, as a cathartic, is from thirty to sixty grains, or from half to a teaspoonful, and it should be accompanied with ten or fifteen grains of powdered Cloves, or Pepper, or Spearmint, or five or six grains of Cayenne, to prevent griping and sickness at the stomach; and if you wish to have the fullest hydragogue effect, as in Dropsy or local Inflammation, give along with it double as much Cream of Tartar. The extract may be made by coarsely powdering a quantity of the dried root (the fresh root should never be used, as it is too acrid), and covering it in a vessel with dilute Alcohol (that is, Alcohol and Water, equal parts), and letting it stand for twenty-four hours or longer, then add more Water, and simmer slowly over a slow heat for one or two days; strain and squeeze, or press out; then evaporate the liquid over a slow heat till it becomes thick, like a pill mass, or conserve, when it may be put away in a jar for use. The dose of the extract, as a cathartic, will be five or six grains; and it should be made into two or three pills, adding a little Cayenne Pepper, or powdered Cloves, and perhaps some Rhubarb, or any other suitable powder, to render it thick enough to form pills. The addition of the Cayenne makes it act much quicker. As a pill, take pulverized Lobelia Seed, 20 grains; Ipecac, 20 grains; Leptandrin, 20 grains; Sanguinarin, 10 grains; Cayenne, 10 grains; Extract of May Apple, enough to form into pill mass. Dose: as an alterative, and to act on the Liver, one pill every night, or once a day; as a purgative, three or four pills. This is an excellent and Anti-bilious Pill, suitable in all cases where a laxative or cathartic is needed.

PODOPHYLLIN.—This is a fine dark-yellow or greenish powder, the concentrated preparation made from the May Apple Root. It is given in different sized doses, owing to the effect you wish to produce, and in various combinations with other agents. It is a most admirable and convenient medicine, owing to the smallness of the dose required, and is applicable in all cases where a cathartic or purgative is needed, anti-bilious, hepatic, hydragogue, laxative or alterative, and may be combined in large or small proportions with any other medicine. It can always be had at the drug-stores, neatly put up in ounce bottles, and is one of the remedies that should always be kept in the house. The dose of the Podophyllin, as a purgative, is about two to three grains. Given alone, it is rather slow in its action, but combined with as much pure Cayenne, it will operate in half the time, or less. It is always best to combine a little Cayenne, Cloves, or Ginger, with it, to prevent nausea and griping; and if you wish the full hydragogue effect, as in Dropsy, internal or local Inflammation, give also along with it a teaspoonful of Cream of Tartar. It generally acts better, and more efficiently, given in divided doses, say three grains divided into three equal doses, giving one every two hours. As an alterative, it may be given in about half-grain doses, once or twice a day, and in such cases, it is best to combine with it as much Leptandrin and Sanguinarin; and if you add as much each of Ipecac and Cayenne, and make the whole into pills with Extract of Dandelion, so as to have half a grain of each in a pill, you will have one of the best pills known for torpid Liver, Bilious conditions of the system, Dyspepsia, and the like. One pill to be taken daily, or every other day; and as a purgative, three or four pills at a dose. If you will take 20 grains Podophyllin and 10 grains Cayenne, and make into ten pills, with a very little Mucilage Gum Arabic, or soft Extract of May Apple Root, you will have one of the best and most active purgatives known. One pill will operate in an hour.

**Mustard.**—There are two kinds of the Mustard common in this country, the Black and the White, technically called *Sinapis Nigra* and *Sinapis Alba*. The seed is the part used, and both kinds are about the same—the Black Seeds, perhaps, being a little the stronger.

MEDICAL PROPERTIES AND USES.—Mustard Seed is stimulant, diuretic, irritant, and applied externally, rubefacient, emetic, and vesicant—that is, will produce a blister. Powdered Mustard Seed is extensively used as a condiment for Meats, and as a stimulant to the Appetite and Digestive Organs. It is a very good stimulant, and is often used with advantage in Dyspepsia and Weak Digestion. In large doses, that is, two or three teaspoonfuls, it is a very quick, prompt emetic, and useful in case of swallowing Poison. When the seeds are used as a remedy for Dyspepsia, they should be swallowed whole; and when thus taken, in small doses, say a teaspoonful two or three times a day, it communicates both warmth and vigor to the stomach and blood. It promotes an appetite, and gives a

pleasant feeling to the whole system, acts on the liver, and gives a beautiful appearance to the skin. It should be taken two or three times a day, for a length of time—the Seeds swallowed whole with Water. I have cured the worst cases of Dyspepsia and Diseases of the Stomach by this simple remedy. In Palsy and Chronic Rheumatism, it is given to quicken the circulation and promote the vital actions. The Ground Seed makes an excellent poultice to relieve Rheumatic Pains, and to produce a revulsion in the circulation of the blood. Ground Mustard is extensively used in the form of plasters or sinapisms, as they are medically called, as an external irritant, or to produce a sort of blister, to relieve Internal Pain and Inflammations, and is often very serviceable.

**Nutmeg**—(*Nux Myristica*).—Nutmeg is a well known article, to be found in all the drug-stores and grocers' shops in the country. It is the kernel of the fruit of a tree cultivated in the West Indies and other warm latitudes, which grows to the height of twenty to thirty feet, called the Nutmeg tree, or *Myristica Moschata*. The outside, or covering of the nut or kernel, constitutes the article known as Mace, and found also in drug and other stores.

Medical Properties and Uses.—Nutmeg is an aromatic stimulant and stomachic, and often used along with other articles in Diarrhœas and Dysentery, especially in syrups and the like. It is also used extensively to flavor articles of diet and drinks for sick and convalescent persons, and is very grateful and pleasant. Both the Nutmeg and Mace are said to possess narcotic properties, and should not be taken in doses of more than twenty or thirty grains at a time.

**Nux Vomica.**—These are the seeds of a tree which grows in the East Indies, called *Strychnos Nux Vomica*. They are of a brownish color, hard, nearly flat, and round, about as large as an ordinary sized coat button, and are often called Dog Buttons, from the fact that they are often used as a poison to kill dogs. They may generally be found in drug-stores; also the extract of Nux Vomica, which is made from them. This is one of the most important and useful of the vegetable drugs.

Medical Properties and Uses.—Nux Vomica is a powerful and deadly poison, if taken in sufficiently large quantity, and, when used, it must always be with caution. You should never take it, except by the direction of a physician. It is from this article that Strychnine is made—one of the most deadly poisons known. In poisonous doses, it produces Convulsions, Asphyxia, and Death. Even in moderate or small doses, it sometimes produces unpleasant symptoms, such as general weakness, trembling in the limbs, slight rigidity of the muscles, heat in the stomach, constriction of the throat and chest, retention of urine, slight spasms of the muscles, pain in the head, vertigo or dizziness, and the like. Nux Vomica, in whatever form it is used, is always to be taken in very small doses; it then acts as a nervous tonic, and is mostly used in the treatment of Paralysis, or Palsy.

It is used in both general and local Palsy, and is especially recommended in Paralysis of the Bladder. It is also used, and by some highly recommended, in St. Vitus' Dance, Mania, and Neuralgia; also in Dyspepsia, Habitual Constipation, Rheumatism, Chronic Dysentery, and Chronic Inflammation of the Spleen. The dose of powdered Nux Vomica is from one to three grains, for a grown person, three times a day, as a tonic; of the extract, which is the best form in which to use it, about one-twentieth of a grain three times a day. The extract is usually powdered and mixed with other articles, suitable to the case, so as to have one grain of it in about twenty pills; one pill to be taken two or three times a day. This is a tonic in Dyspepsia and the like. In cases of Paralysis, as much as half a grain to a grain of the extract may be given at a dose, and may be gradually increased until some unpleasant symptoms begin to manifest themselves. The tincture, which is also kept in drug-stores, is used in doses of five to six drops, three times a day, gradually increased up to thirty drops.

Strychnine is one of the best heart tonics and stimulants we have; it is given in doses of $\frac{1}{60}$ to $\frac{1}{12}$ of a grain, and can be administered hypodermatically. It is used in shock and collapse; also in all forms of heart failure. The value of all forms of Nux Vomica depends chiefly upon the contained Strychnine, which is the active principle of the drug.

**Opium.**—Opium is the concrete juice of the White Poppy, medically called *Papaver Somniferum*. The Poppy is cultivated, more or less, in many of our gardens, and is a familiar plant to most persons in this country. It has large white blossoms, followed by a pod, containing the seeds. The whole plant contains a milky juice, which, on becoming thickened or hardened, constitutes the Opium found in the drug-stores. The Opium of commerce is obtained mostly from Turkey, China, and neighboring countries, where the Poppy is extensively cultivated. This is the king of drugs of all kinds, and the one of all others which we could least readily dispense with.

Medical Properties and Uses.—Opium is a powerful narcotic; also sedative, anti-spasmodic, and diaphoretic, while at the same time it checks the operation of the Bowels, and the action or secretion of the Mucous Membranes. No medicine has ever been discovered that can compare to it for moderating and relieving Pain, or in promoting Sleep. Its sedative virtue resides in a principle called Morphia, or Morphine. A grain of Opium taken into the Stomach produces remarkable composure of the mind, followed by languor and drowsiness; the pulse becomes slower, fuller, and softer; all the secretions are, in the first instance, diminished; the motion of the bowels is retarded; the thirst increased, and the mouth dry. The heat of the body is increased, and the senses rendered dull. In the course of three or four hours a perspiration, or sweat, is produced. The narcotic effect of a dose of Opium lasts generally about eight hours; and in general, a full dose of it cannot be given with safety oftener than three times in

twenty-four hours. In cases of great pain and distress, however, it can be given much oftener, and in larger doses, than in others. In too large a dose, it produces a comatose state, and Death. The medium dose of Opium is one grain, in the form of a pill. It is often, however, given in doses of three grains; but in such cases there must be great pain to require such heavy doses. Opium operates differently upon different constitutions. Upon some persons, half a grain will have as much effect as a grain or a grain and a half upon others. In almost all diseases attended with Pain, Distress, and Loss of Sleep, Opium, as the powdered drug or as Morphine, Laudanum, or Paregoric is more or less used. In Dysentery, Diarrhœa, Cholera Morbus, Colic, Epilepsy, Lockjaw, Spasms, Hypochondria, Gravel, Asthma, Consumption, Wounds, Hemorrhages, Fractures, Dislocations, Toothache, Tic Douloureux, and threatened Abortion, Opium, in one form or another, is found of great service. It is, perhaps, used more frequently in the forms of Morphine, Laudanum, and Paregoric, than in any other.

Laudanum.—This is simply the Tincture of Opium. It is made by tincturing 1 ounce of Opium, broken to pieces, in 1 pint of Spirits, or diluted Alcohol. The dose of Laudanum for a grown person is from thirty to sixty drops, and may be repeated two or three times in the course of twenty-four hours. A teaspoonful is a large dose, and can be given only in extreme pain and distress. The common dose for a child between one and three years old is from three to seven drops; for a child six months old, two, three, or four drops. One drop may be given to a child a month old.

Paregoric.—This is a milder preparation of Opium, along with some other articles. It is made as follows: Take Opium, ½ drachm; Benzoic Acid, ½ drachm; Oil of Anise, 30 drops; Gum Camphor, 20 grains; diluted Alcohol or Spirits, 1 pint; let stand, and macerate or tincture for two weeks, shaking occasionally; then strain or filter through paper. It is mostly used for children. The dose for children is from five to twenty drops, under three years of age; and over that, from twenty drops to a teaspoonful; for a grown person, a tablespoonful. It is a pleasant anodyne and antispasmodic. These preparations may always be had at a drug-store.

Morphine.—This is a highly concentrated preparation of Opium. It is the active principle of Opium. It is in the form of a fine white powder. The dose for a grown person is from one-sixth to one-third of a grain—one-fourth of a grain being a full medium dose. Persons habituated to its use, by taking it for several days or weeks in succession, will come to bear as much as a grain; but more than a third of a grain should never be taken at once by persons not in the habit of its continued use, and then only in severe pain, as Neuralgia, Toothache, and the like. Infants and very young children should never take it, as there is great danger of giving too much. There are several preparations of Morphine, but that known as Sulphate of Morphia is most commonly used, and is what is always understood by the term *Morphine*. It is sometimes styled the "Divine Medicine," and stands

unrivaled in the *Materia Medica* as an immediate remedy, and for giving temporary relief in all cases of severe pain. Remember that children do not bear Opium or Morphine well, so that the dose for them should be extremely small.

Apomorphine is an artificial preparation made from Morphine. It is the most powerful and quickest acting emetic known. It should be given only hypodermatically and in doses not exceeding $\frac{1}{12}$ of a grain. It produces emesis in half a minute after administration, *i. e.*, after injecting it under the skin.

Codeine is another alkaloid and active principle extracted from Opium. It controls cough better than any known drug. It is used for much the same purposes that Morphine is, but is less powerful. The dose is $\frac{1}{8}$ to 2 grains; a quarter of a grain at bedtime will stop coughing in an adult.

**Orange Peel.**—This is the outside rind or peel of the well-known and delicious fruit of a small evergreen tree, called technically *Citrus Aurantium*, which grows in warm latitudes of the United States and other warm countries. Oranges are extensively cultivated in Louisiana and other of the Gulf States, and are raised in immense quantities in Cuba and other West India Islands. The best, however, are from Sicily, in the Mediterranean, and Seville, in Spain.

Medical Properties and Uses.—Orange Peel is a mild bitter tonic, and excitant of the digestive organs. It is mostly used in the form of bitters, and then generally along with other articles, to correct their taste, and render them more agreeable. The juice of the ripe Orange is very refreshing, and often serviceable to the sick, especially to those suffering with Fevers. It is not only harmless, but often beneficial—especially if desired by the patient.

**Orris Root**—(*Iris Florentina*).—This is a nice, clean, white root, to be found generally in the drug-stores. It is a species of the Flag, native to Europe, but cultivated to some extent in the gardens of this country. It is of little consequence as a medicine, but is used extensively in Tooth Powders and the like, to improve the breath. The root may also be chewed for the purpose. It possesses a peculiar, mild, and quite pleasant flavor.

**Peach-Tree**—(*Amygdalus Persica*).—The Peach-tree is said to be a native of Persia, but is extensively cultivated in this country, and is too well known to need any description. The leaves, kernels, and bark of the root are used as medicine.

Medical Properties and Uses.—Tonic, diuretic, hepatic, alterative, sedative, and somewhat laxative. A strong bitters made of the leaves and bark of the root, taken in moderate doses three or four times a day, is one of the best remedies I ever tried for Jaundice; also a good bitters in all affections of the Liver, and in Dyspepsia. A cold infusion or strong tea of the leaves, given in tablespoonful doses every hour or oftener, is highly

beneficial in Inflammation of the Bowels or Stomach; at the same time, a fomentation of the leaves, boiled either alone or with Hops, or other bitter herbs, should be applied externally, as warm as can be borne. The kernels are made into a syrup or cordial sometimes, and used in Diarrhœa, Dysentery and the like, with a very fine effect. They are also used in the form of tincture, made by adding 2 ounces, bruised, to 1 pint of Brandy. Dose: a teaspoonful three to six times a day, and good as a tonic in Intermittent Fever, in Leucorrhœa, Dyspepsia, and in General Debility. Peach-kernel, powdered, mixed with Blackberries, and made into a cordial, with a little Cinnamon, Cloves, and Allspice, is a splendid medicine for the Summer Complaint, as well as for all Bowel Complaints for the old or young. The action is due to the contained hydrogenic acid.

**Peppermint**—(*Mentha Piperita*).—Peppermint is a native of Europe, but has been introduced into this country, and is extensively cultivated here, besides growing wild in many places. It is a very fragrant, aromatic herb, growing usually from one to two feet high, and preferring moist, rich soil, or wet places. It is very extensively and profitably cultivated in some places for the purpose of distilling the oil, which is done from the green herb. It is quite similar in appearance and fragrance to the Spearmint, and not easily distinguished by inexperienced persons, though there is an essential difference.

Medical Properties and Uses.—The leaves are the part most used, though the whole herb is medicinal. It is a powerful and agreeable aromatic stimulant, very diffusive and penetrating, and is also carminative, antispasmodic, and anti-emetic. Used as a stimulant, to promote perspiration, to relieve Flatulent Colic and Griping Pains, especially in combination with griping cathartic medicines, and to allay or prevent nausea and sickness at the stomach. It is also good in Cramps and Spasms of the Stomach, in Hysterical Affections, in Bowel Complaints of children, and to render other medicines more agreeable. It may be used freely in tea or infusion, either alone or in combination with other articles. It is also used in the form of essence, which is made by dissolving 1 drachm of the oil in 1 ounce of Alcohol. Dose: of the essence, from one to two teaspoonfuls for a grown person, and ten to thirty drops for infants, in a little sweetened Water; of the oil, from one to five or six drops, on a little sugar. The oil and essence may always be had at the drug-stores.

**Peruvian Bark**—(*Cinchona Officinalis*).—This is the bark of a tree which grows in South America, and the bark being pulverized for commerce, is sent to this country, and may be purchased at any drug-store. The use of this bark was first learned from the following circumstance: Some of the trees being thrown by the winds into a pool of water, lay there till the water became so bitter that everybody refused to drink it; but one of the neighboring inhabitants being seized with a violent paroxysm of Fever, and finding no other water to quench his thirst, was forced to drink this,

by which he was perfectly cured. He afterward related the circumstance to others, and prevailed on some of his friends, who were ill of Fevers, to make use of the same remedy, with whom it proved equally successful. After this, it was taken to Europe by the Jesuits, and hence called Jesuit's Bark. The use of Peruvian Bark was first discovered, like most other remedies, by accident, or rather providentially.

MEDICAL PROPERTIES AND USES.—The red and yellow kinds are the best; but I have usually, in my practice, used the red. It is taken in the form of powder, or a tincture made with Wine. If properly administered, it is a sure remedy for Malaria. The Quinine of commerce is a production of the Peruvian Bark. This extract is now generally used in place of the bark, having all the strength of the bark concentrated in it, and the dose, being smaller, is more easily administered. It is, in fact, the active principle of the bark. The Peruvian Bark, as well as Quinine, is a powerful anti-periodic tonic, and when used as such, for the purpose of curing Malaria, it should be taken in doses of about a teaspoonful, or thirty to sixty grains, three or four times a day in capsules; as a mere strengthening and restorative tonic, from ten to twenty grains, twice or three times a day, would be the proper quantity. The Quinine, however, which is made from this article, is now generally used in its stead. For the manner in which Quinine is used, see the various preparations under the head of "Malaria," etc.

**Poppy**—(*Papaver Somniferum*)—This article, which is the common White Poppy, has been alluded to under the head of "Opium"—which drug is made from the Poppy, as has been explained. The Poppy is more or less cultivated in our gardens; generally, I presume, as an ornament, rather than for its medicinal properties. It is a valuable plant, however, and may be used, in the form of a decoction or infusion in many cases, instead of the Opium, being possessed of the same narcotic or Opium principle, but in a less degree. The leaves, stalks and heads all contain the narcotic principle. Poultices made with a decoction of this plant are excellent applications to lessen pain, and act as a soothing remedy, in Ulcers, Painful Swellings, and Inflammations. An infusion of tea of the leaves, blossoms, or heads, may be drank in moderate doses in Painful Menses, Hysterics, Diarrhœa, Cholera Morbus, Nervous Headache, Neuralgia, Tooth and Ear-ache, Nervous Coughs, and in any case where Opium, Laudanum, or Paregoric might be used. Every family should save a quantity of Poppy leaves and heads, for such purposes.

**Pumpkin Seed**—(*Cucurbita Pepo*).—Pumpkin Seeds, as well as Pumpkins, are too well known to need any description.

MEDICAL PROPERTIES AND USES.— Pumpkin Seeds are an excellent mucilaginous diuretic, very similar in their operation to the Watermelon Seed. To be used freely in infusion or tea in affections of the Urinary Organs, and Inflammations of the Bowels. Good in Retention of Urine, Inflammation of the Bladder, and to destroy intestinal worms, especially the Tape-worm.

**Quassia**—(*Picræna Excelsa*).—This is a large, tall tree, native of Jamaica and some parts of South America, and is also known as Bitter Ash and Bitter Wood. The wood is the part used as medicine, and is extremely bitter. It can generally be found in the drug-stores of this country, in small blocks or chips; is of a light yellowish color, without odor or smell, but is of a pure, intensely bitter taste. There are also what are called *Quassia Cups* to be found now in the drug-stores, being a sort of wooden cup or goblet, made of the Quassia Wood, for the purpose of drinking out of, to obtain the bitter or tonic properties of the wood—which is so bitter, and yields its properties so readily to water, that if water is allowed to remain a few minutes in the cup, it will become quite bitter. What is most singular, this bitter principle seems almost inexhaustible. The use of these Quassia Cups is very beneficial to Convalescent, Dyspeptic, and Debilitated Persons.

Medical Properties and Uses.—The Quassia Wood is a tonic and anthelmintic, and considered valuable in Dyspepsia, General Debility, and Weakness, and during recovery from Intermittent and Bilious Fevers. It is used mostly in infusion, which is made by infusing, for twelve hours, 1 ounce of the fine chips or raspings of Quassia in 1 quart of Cold Water; the dose of which is about half a teacupful three times a day, still leaving the Quassia in the Water; a little Ginger Root, Cloves, Lemon Peel, and the like, may be added, to render the infusion more palatable to the taste. The dose of the Tincture or Quassia is one to two teaspoonfuls, and of the extract from one to three grains.

**Quinine**—(*Sulphate of Quinia*).—This is a fine, white, crystalline powder, obtained by chemical process from the Peruvian or Cinchona Bark. It is an Alkaline Salt, and contains all the virtues of the Peruvian Bark, highly concentrated, and may therefore be used in all cases instead of the bark. It is preferable to the bark in most cases, on account of the smallness of the dose, which is, in ordinary cases, from one to two grains; though it is often given in much larger quantities. It is a well known article, and can always be found in the drug-stores, being the principal remedy for the Chills and Fever of the Western country.

Medical Properties and Uses.—Quinine is a pure, intensely bitter, and most powerful tonic, febrifuge, and anti-periodic. It is a standard remedy, and altogether the most successful and popular one, for Malaria, and is used very extensively for that purpose. It is, in fact, one of a few specifics. It is also valuable in all cases where a tonic is called for. There is, in many parts of the country, a prejudice among the people against its use. If given in very large doses, as it often is, it produces a fullness of the head, and ringing or buzzing in the ears, for a while. I am satisfied, however, that the prejudice against the article is, in most cases, greater than the facts will justify; and that it is one of the most valuable and useful tonics known to the profession. The ordinary dose of Quinine, as a tonic

and restorative, is about a grain for a grown person two or three times a day; but as an Anti-periodic and Malaria remedy, it may be given at the rate of one grain every hour, or every two hours, until twelve to fifteen grains are taken. It is also given in doses of three to five grains, and repeated every three or four hours, until from twelve to twenty grains are taken. It is best always to give it during intermission; that is, when the patient is free from Fever. When the Fever is of the Intermittent kind, occurring every other day, as it generally does, a sufficient quantity should be given during the well day—that is, twelve to fifteen grains or more—to break the disease; and it may be given in any way most convenient to the patient, either in solution, in powder, in pills, or in capsules. In making a solution, a little Sulphuric Acid should be added, as it causes the Quinine to dissolve much better, and it also seems to exert a beneficial effect upon its action. A very good plan is to add 14 grains of Quinine to one ounce of Water, and then 14 drops of Sulphuric Acid, which will cause it to dissolve at once. This quantity is sufficient to break any ordinary case of Malaria, and is to be given in teaspoonful doses every hour, or every two hours, until it is taken. This is called Dr. Baum's great remedy. It may also be made into pills. One of the best formulas I have ever tried, is as follows: 12 grains Quinine; 6 grains Ipecac; 3 grains pulverized Opium, and 6 grains Cayenne; make into twelve pills, with a little Extract of Gentian; and take at the rate of one pill every hour during the "well day," until all are taken. Quinine may also be dissolved in some good Whiskey or Brandy, in the proportion of 1 drachm (or 60 grains) to 4 ounces of the Liquor; to which may be added ½ ounce, each, of strong Essence of Peppermint and Cloves, and taken in doses of a teaspoonful every hour or two. The ways and forms in which Quinine is given, are almost innumerable; all that is necessary to remember is, that as a remedy to break up Malaria, about twelve grains should be given, in divided doses, in about as many hours; while as a restorative, one or two grains a day are sufficient.

**Rhubarb**—(*Rheum Palmatum*).—This is the root of a plant cultivated in China, Russia, Turkey, and some other parts of the world, and is now to be found in all of our drug-stores, as a standard medicine. The best article of Rhubarb comes from Turkey, and is usually in a crude state, though you will generally find Rhubarb in the form of a fine, darkish yellow powder.

Medical Properties and Uses.—Rhubarb is a mild cathartic, and somewhat astringent and tonic also. For diseases of women, children, and all delicate persons, it is an excellent purgative: it is also to be preferred to almost any other purgative medicine in Dysentery and Diarrhœa, on account of its tonic and astringent properties. Combined with Leptandrin and Dover's Powders, it is an admirable remedy in Dysentery and Diarrhœa, given in "broken," or small doses, sufficient only to act gently on the bowels after several doses have been taken. The dose of Rhubarb as a purgative is from thirty to sixty grains, or from a half to a teaspoonful; when given in five

to ten grain doses two or three times a day, it acts as a tonic and mild laxative.

**Rosin**—(*Resin*, or *Resina*).—This is a common and well known article, sometimes called Rosum. It is the residuum which remains after distilling the Spirits or Oil from the Gum Turpentine of the Pine. It is a hard, brittle substance, of a dark yellowish color, easily melted by heat and may be found in all drug-stores.

Medical Properties and Uses.—Its principal use in medicine is to form plasters and ointments; in plasters, for its adhesive or sticking qualities and drawing, and in ointments and salves, partly for the same, and also for the purpose of hardening or thickening them. It is seldom used internally; though finely powdered and mixed with an equal quantity of pulverized White Sugar and taken in half teaspoonful doses occasionally, it is very good for irritable, hacking Coughs. The vapor or fume arising from burning Rosin is also said to be good, inhaled into the throat and lungs, in Bronchitis, Consumption, and other Affections of the Lungs.

**Sago**—(*Sago Palm*).—Sago is a sort of coarse, granulated powder, or starch, made from the pith of a tree, the *Sago Palm* or *Sagus Rumphii*, which grows in Sumatra, Malacca, and adjacent islands, and may be found in drug and grocery stores in this country.

Medical Properties and Uses.—Sago is a nutritive demulcent, is extensively used for making Puddings, and is a useful and very agreeable article of diet for sick persons, in the form of Gruel or Pudding. It is used the same as Tapioca. Sago should be well boiled, until it is thoroughly soft and tender; 1 or 2 tablespoonfuls to 1 pint of Water or Milk is sufficient, and it may be sweetened with White Sugar and flavored with a little Nutmeg, Cinnamon, or other agreeable aromatic, Wine, and the like. It is an excellent, inoffensive and nutritious diet for sick, delicate or convalescent persons. Is very much liked by children, and is especially useful in Bowel Complaints. There is an article now manufactured at Oswego, New York, and also near Ottawa, Illinois, where they manufacture Starch from Corn, called "Corn Food"—being a coarse article of Corn Starch, which is regarded as superior to either Sago or Tapioca for Puddings and Diet for the Sick Room, being both more palatable and nutritious.

**Sarsaparilla**—(*Smilax Officinalis*).—The Smilax Sarsaparilla is a shrubby, creeping vine, found growing wild in Mexico, South America, and some other parts of the world. There are several varieties of the Sarsaparilla. That which comes from Honduras is thought to be the best, and is mostly in use in this country. The root is the part used, and may generally be found at the drug-stores.

Medical Properties and Uses.—Sarsaparilla Root is regarded as a very valuable alterative, producing changes in the system, without causing any sensible effect in any of the secretions or functions. It has had a great

reputation as an alterative medicine, and still has; but it is doubtful if it is much, if any better, than some of our own, such as the Burdock, Stillingia Sylvatica, and common Yellow Parilla of this country. The dose of the decoction or syrup is from half to a wine-glassful, two or three times a day.

**Scammony**—(*Convolvulus Scammonia*).—This plant is a native of Syria, and grows extensively on the chain of mountains extending from Antioch to Mount Lebanon, or in the Holy Land. Recently, however, this valuable plant has been discovered growing wild in this country, in the western part of the States of New York and Ohio, and is generally supposed to grow throughout the whole West. The root is the part selected for use.

Medical Properties and Uses.—This is a valuable purgative medicine, and may be compared to the May Apple, which is well known in the country as a purge—not in appearance, but acting on the bowels in the same manner. If required to purge actively, the May Apple may be mixed with it. In people of indolent habits—that is, those who are much bound in their bodies—we find this highly serviceable as a purge. It relieves the Liver when inactive, or when the skin is of a yellow appearance; is also excellent for Dropsical patients, and for children who look swollen, indicating Worms. It should be combined with some other article to prevent its griping, such as Coriander Seed, or a small portion of Ginger or Cloves, particularly when it is administered to children. The dose in powder, is from eight to twenty grains, which may be given two or three times a day. May always be found at the drug-stores, in the form of powder.

**Seneca Snake Root**—(*Polygala Senega*).—This plant, or shrub, grows in various parts of this country. It is a little, crooked, shrubby plant, from ten to fifteen inches high, with small, bright green leaves, one to two inches long, and from a half to three-quarters of an inch wide. The blossoms are few, small and white, and appear from June till August. It is found mostly in the Southern and Western States. The root, which is the part used, is usually two or three inches long, from a fourth to half an inch in diameter, tapering and irregular in shape, with a sort of ringed protuberance running around it, something like Ginseng Root. The fresh root has a peculiar, nauseous smell, and somewhat sweetish, mucilaginous taste, soon followed by a pungent, acrid taste, causing an increased flow of the saliva. The central part of the root is hard and woody.

Medical Properties and Uses.—It is a stimulating expectorant and diuretic; also emmenagogue, and, in large doses, emetic, and cathartic. It is mostly used for its expectorant properties in Coughs, Colds, and Lung Affections. Considered good in Croup, Asthma, and Chronic Bronchitis. It is also used in Suppressed Menses, in combination with other emmenagogues. It has also been used with success in Dropsy of long standing, in the form of decoction—say 1 ounce of the dry root, boiled in 1 quart of

Water down to 1 pint,-and given in tablespoonful doses, every hour, till all is taken, and to be continued, if necessary—first giving a thorough emetic. Seneca Snake Root is one of the principal ingredients in the celebrated Hive Syrup, which is so much used for Croup. Dose: of the infusion, from half to a wine-glassful; of the tincture, one to three or four teaspoonfuls; of the powder, from ten to thirty grains.

**Senna**—(*Cassia Senna*).—This herb is a native of Africa and the countries about the Mediterranean. The leaves are the part used, and may always be had at the drug-stores.

Medical Properties and Uses.—Senna is a mild, but very certain and useful, cathartic. It has rather an unpleasant taste, and slightly nauseating or sickening effect, if it is given alone; hence it is usually combined with some aromatic, such as Cloves, Ginger, and the like, or with Manna, especially when given to children. It is generally given in infusion or decoction; about ¼ ounce or 2 drachms of Senna Leaves, steeped in 1 teacupful of Boiling Water, with a little Cloves and a teaspoonful of Cream of Tartar added, forms an excellent purgative in all ordinary cases, and is especially adapted to children and delicate females; the whole of this quantity to be taken at once by a grown person. Dose: in powder, thirty to forty grains; of the tincture, two to four tablespoonfuls; of the fluid extract or electuary, about one tablespoonful; of the infusion, from a half to a teacupful.

**Skull-cap**—(*Scutellaria Lateriflora*).—The Skull-cap is a small herb, from one to two feet high, growing in moist places, in creek bottoms, meadows, and by the edges of ponds. It is also known by the names of Mad-dog Weed, Hoodwort, and Blue Skull-cap. It has numerous branches, which are opposite each other, small leaves, also opposite, very thin, and small, light blue flowers, which appear in July and August. The root is small, woody or fibrous, and of a yellowish color. The whole plant—leaves, stems, and root—is medicinal.

Medical Properties and Uses.—Skull-cap is a valuable tonic nervine and anti-spasmodic. It is especially useful in St. Vitus' Dance, Neuralgia, Convulsions, Delirium Tremens; in Nervous Excitability, Restlessness, Inability to Sleep, and indeed in all Nervous Affections. It is also good in Intermittent and Nervous Fevers. It is to be used freely in infusion, about ½ ounce of the dry herb to 1 pint of Boiling Water.

**Solomon's Seal**—(*Convalaria Racemosa*).—Solomon's Seal grows from one to three feet high; has a curved or bending stalk, giving it an arched appearance; leaves from three to six inches long, alternate, clasping the stalk, oblong and pointed, larger near the base of the stalk, and growing smaller toward the top; small, greenish-white flowers, hanging under the leaves; followed by pale red, white and purple-speckled berries. There is another species of which the berries are dark-blue or black when ripe. Solomon's Seal grows in rich hill-sides, banks, and the edges of meadows. The root, which is the part used, is soft, somewhat mucilaginous, and of a

sweetish taste, slightly bitter. Both varieties are the same in medicinal properties.

MEDICAL PROPERTIES AND USES—A mucilaginous tonic, mildly astringent, and very healing and restorative. Very useful in Female Diseases, as in Leucorrhœa or Whites, and excessive and painful Menstruation. Also good in Affections of the Lungs, in irritable conditions of the Stomach and Bowels, in Piles, and in General Debility. Used freely in decoction, and in the form of syrup or cordial. It is said that in Erysipelas, and in Poison from the Poison-vine, as well as other Skin Diseases, a decoction of the root drank freely, and the parts bathed with the same, will soon effect a cure.

**Squill**—(*Scilla Maritima*).—This is a very peculiar plant, being a sort of bulb, growing partly above and partly in the ground, giving off from the bulb both roots and leaves, and a flower-stem two to three feet high. It grows spontaneously along the Mediterranean coast, and in some parts of Portugal and France, being confined to the sea-coast. The bulb is the part used in medicine, and may always be had at the drug-stores.

MEDICAL PROPERTIES AND USES.—Squill is diuretic, expectorant, and sedative, in its proper medicinal doses; but in larger doses, is an irritant emetic and cathartic, and in over-doses an irritant poison, producing Inflammation of the Bowels and Urinary Organs. Used almost exclusively for its diuretic and expectorant properties, in Dropsy, Kidney Affections, Inflammation of the Lungs, Asthma, Consumption, Coughs, and for its sedative effects in diminishing the frequency of the pulse in over-action of the heart. It is generally used in the form of Syrup and Vinegar of Squills—both of which preparations may usually be had at the drug-stores, and generally in combination with other articles. Equal parts of Wine of Ipecac, Tincture of Lobelia, and Syrup of Squills, make an excellent Cough preparation, to be taken in teaspoonful doses, as may be required. The dose of Squill in powder, as a diuretic or expectorant, is one to two grains; of the Syrup or Vinegar, one to two teaspoonfuls.

**Stramonium**—(*Datura Stramonium*).—Most commonly called Jimson Weed, or Jamestown Weed; also known by the name of Thorn Apple. It is a common, rank, very offensive, stinking weed, growing in great abundance in many places, generally around barns, in front of farm-houses, along roadsides, and in vacant lots and fields that have been trod a good deal by domestic animals. It is too common to need any description, further than to say it has a thick smooth stalk, is usually about three to four feet high, large dark green leaves, a long, white, slightly purplish trumpet-shaped blossom, and bears a large thorny apple or pod, full of black angular seeds, which burst open in the fall, etc.

MEDICAL PROPERTIES AND USES.—This is another of the vegetable poisons, and if taken in large doses, will produce serious results, such as extreme Thirst, Vomiting, Choking, Dryness of the Throat, Faintness, Blindness, Delirium, Trembling of the Limbs, Stupor, and sometimes Palsy, Convulsions, and Death. In moderate doses, it sometimes produces

some of these symptoms in a mild form, such as Headache, Vertigo or Dizziness, Dimness of the Vision, Confusion of Ideas, and a sort of Intoxication or mild Delirium. It is often and beneficially used instead of Opium, where that article is contra-indicated, acting as an anodyne and anti-spasmodic. It does not constipate the bowels, and is, therefore, in many cases, preferable to Opium. It has been used to allay Neuralgic and Rheumatic Pain, but has been found most serviceable in Epilepsy, Mania, mild Delirium, especially Delirium Tremens; in severe Inflammation of the Stomach and the Bowels, and, in combination with Quinine, it has proved very beneficial in Intermittent Fever, attended with severe Headache and other periodic pains; it has also often proved extremely serviceable in severe Dysmenorrhea. It is generally used in extract, which can always be had at the drug-stores under the name of Extract Stramonium—the dose of which is from half a grain to two grains; of the tincture (which is made of the bruised seeds, 2 ounces to 1 pint of Spirits), the dose is from five to twenty drops, and may gradually be increased to thirty. The seeds have long been known to be one of the best agents there is to prevent Abortion or Miscarriage; for this purpose, it is said that seven ripe seeds are to be taken whole, at one dose, where Abortion is threatened, and the dose repeated afterward every six or twelve hours, so long as threatening symptoms continue. Externally, Stramonium is a valuable agent. A poultice of the green leaves, or, if dry, softened with Warm Water, is an admirable application to the Bowels, or Abdomen, in Inflammation of the Stomach, Bowels, and what is called Peritoneal or Abdominal Inflammation; in Inflammation and Pain of the Bladder, from Retention of Urine; and highly valuable to severe, Painful Swellings, Rheumatism, Painful Sores, Swelled and Painful Breasts of females, Inflamed Eyelids, etc. An ointment made by stewing the fresh leaves in Lard is excellent for Piles, for Inflamed Breasts and all painful Tumors and Swellings.

**Tamarinds**—(*Tamarindus Indica*).—Tamarinds are the fruit of a large tree which grows in Arabia, Egypt, and the East and West Indies. They are brought to this country in a preserved state, and are sold in drug and grocery stores.

Medical Properties and Uses.—Tamarinds are laxative; that is, mildly cathartic, and refrigerant or cooling. They are used more as a Cooling Drink during Fevers than for any other purpose, in the sick room. A quantity of Tamarinds infused in Water forms a refreshing and very grateful Drink for sick and convalescent persons, suffering from Fevers and the like, while at the same time it tends to keep the Bowels in an open and soluble condition. An infusion of Tamarinds is also a very convenient vehicle in which to give more active cathartics, as Senna, and the like. May be taken at pleasure.

**Tannin**—(*Acidum Tannicum*)—*Tannic Acid.*—This is a fine, very light, pale yellowish, nearly white powder, obtained by chemical process from Galls, which grow on a certain species of Oak called *Quercus Infec-*

*toria*, or Gall Oak. It is the same astringent principle, however, which is contained in the common Oak Bark. May be found in the drug-stores.

MEDICAL PROPERTIES AND USES.—Tannin is a pure and very powerful astringent—useful in Diarrhœa, Chronic Dysentery, Uterine and other Hemorrhages; and as an astringent injection in Leucorrhœa, Gleet, Gonorrhœa, etc. It is a very valuable astringent; but care must be taken not to give too much of it, as it is very powerful, and may produce too great a Constipation of the Bowels. It is well to combine with it a little Rhubarb, Podophyllin, or Leptandrin in Bowel Complaints—especially in Dysentery. The dose of Tannin is from a half a grain to three or four grains. It dissolves very readily in Water, and may be mixed with any of the decoctions or liquid preparations for Diarrhœa and Bowel Complaints. Five or six grains dissolved in 1 ounce of Water, forms an excellent wash and gargle for Sore and Ulcerated Throat and Mouth, severe Salivation, foul Ulcers, and the like; and 10 grains mixed with 1 ounce of Lard, is a good ointment for Sore Nipples, Excoriations, and the like.

**Tapioca**—(*Janipha Manihot*).—Tapioca, as found in our stores and shops, is a coarse starch, in grains, near the size of small peas, and is made from the root of an herb which grows in the West Indies and South America, called *Bitter Cassava*. It dissolves readily in Boiling Water, and, in proper proportions, forms a sort of translucent, tasteless jelly.

MEDICAL PROPERTIES AND USES.—Tapioca is demulcent, nutritive, and forms a light, agreeable and nourishing diet for sick persons. It is a good diet for children while Weaning. It is also used extensively for making Puddings. Prepared by boiling a small quantity in Water or Milk, and seasoning it with Lemon Juice, Sugar, Nutmeg, and the like.

**Thyme**—(*Thymus Vulgaris*).—The common garden Thyme—an aromatic, shrubby herb, very generally and well known.

MEDICAL PROPERTIES AND USES.—The leaves are the part used, and are tonic, diaphoretic, emmenagogue, anti-spasmodic and carminative. It is used in infusion, cold, as a tonic, in Dyspepsia, Weak Stomach, and in recovery from Fevers and other exhausting diseases; and warm in Painful and Suppressed Menses, Hysterics, Flatulent Colic, Cold, Headache, and to produce perspiration. May be taken freely.

THE OIL OF THYME is good to apply externally in Neuralgia, Rheumatism, Painful Swellings, and to relieve Toothache; it may be used internally, in doses of from two to ten or fifteen drops, on a little Sugar, in all cases where the infusion may be used.

**Turpentine**—(*Oleum Terebinthinæ*).—Known generally by the common name of Spirits of Turpentine. It is obtained from the Pitch Pine of the Southern States, being distilled from the Gum Turpentine which exudes from those trees. *Oil* and *Spirits* of Turpentine are but different names for the same article.

MEDICAL PROPERTIES AND USES.—Turpentine is an irritant and stimulant diuretic; also anthelmintic and cathartic. In large doses it will oper-

ate on the Bowels, but more powerfully on the Kidneys and Urinary Organs. In doses of twenty to thirty drops, it acts strongly on the Kidneys, causing a copious flow of Urine. It is a good remedy to dislodge and expel Worms, and may be given to children, for this purpose, in doses of half to a teaspoonful, in Molasses. For ordinary Sore Throat, from taking cold, twenty to thirty drops on a little Sugar, and swallowed slowly, is an almost certain cure; it may be repeated once or twice a day. In Dysentery or Flux, a teaspoonful of Turpentine, mixed with a tablespoonful of Sugar, and taken once or twice a day, is, in many cases, sufficient to cure the disease. It will always be found beneficial. Turpentine is an important ingredient in all internal remedies for Gonorrhœa and Gleet. In any obstruction or stoppage of the Urine, its use is generally attended with speedy relief. It penetrates quickly and spreads itself over the whole system. It has also been used with great benefit in Chronic Rheumatism, internally; and is a good application, externally, for Swellings. It forms an important ingredient in many of the best liniments. I once saved a girl's life, in Louisville, who was dying from Worms, by giving a tablespoonful, each, of Turpentine and Castor Oil, which caused a discharge of seventy Worms! Spirits of Turpentine is one of the useful medicines, as many persons well know, and should always be kept in the house. The ordinary dose is one drop for each year of the person's age, on a little Sugar; but may be given in doses of from a teaspoonful to one or two tablespoonfuls.

**Uva Ursi.**—This is a low, evergreen shrub, growing in dry, upland regions, in the northern countries of Europe and America, and called Bearberry and Upland Cranberry. The leaves are the parts used, and may always be found in the drug-stores.

Medical Properties and Uses.—Uva Ursi is an astringent diuretic, and somewhat tonic. It is very serviceable in Chronic Diarrhœa, and Dysentery; in Diabetes, or excessive Flow of Urine; in profuse Menstruation; and is especially useful in Chronic Affections of the Kidneys and Urinary Organs, as Chronic Gonorrhœa, Gleet, Leucorrhœa, and Incontinence of Urine. Used in either powder or decoction. Dose: of the powder, twenty to sixty grains; of the decoction, which is made by boiling for a few minutes 1 ounce of the leaves in 1 quart of Water, half a teacupful, three or four times a day.

**Valerian**—(*Valeriana Officinalis*).—Valerian is a large, handsome plant, indigenous to Europe, growing in rich, moist woods, meadows, and along the banks of streams. The root is the part used, and may generally be found in our drug-stores.

Medical Properties and Uses.—Valerian is a tonic nervine and antispasmodic, and very similar in its properties to the American Valerian, or Lady's Slipper, which may always be used instead of it. It is used in cases of Nervous derangement, especially for nervous females, in hysterical, restless, and irritable conditions, in wakefulness during Fevers, and the like.

Dose: of the tincture (which may always be had at the drug-stores), one to two teaspoonfuls, three or four times a day; of the infusion, one to two wine-glassfuls; of the extract, three to six grains; and of the oil, five to six drops.

**Venice Turpentine.**—This is a thick, viscid liquid, about the consistence of thick Honey, semi-transparent, of a light-yellowish, or slightly greenish color, having a strong Turpentinish smell, and warm, bitterish taste. It is procured from a species of pine called *Abies Larix* or *Larix Europæa.* There is a brown or dark-colored article sold for Venice Turpentine, which, however, is a spurious and manufactured article, and should not be used.

Medical Properties and Uses.—Very similar to those of the common Spirits or Oil of Turpentine—a stimulating diuretic, acting powerfully on the Urinary Organs; used in Gleet, Gonorrhœa, Leucorrhœa, and the like; also in Ointments and Salves, for its healing properties. When taken internally, the dose is from one to two teaspoonfuls.

**Veratrum**—(*Veratrum Viride*).—Known also as American Hellebore, Black Hellebore, and sometimes called Indian Poke and Itch Weed. It grows in many parts of the United States, usually in swamps, low, moist grounds, and on the banks of streams, from three to five feet high, bearing yellowish-green flowers, which appear from May till July. The root is the part used, and in the form of tincture and extract, which may always be had at the drug-stores.

Medical Properties and Uses.—Black Hellebore, or Veratrum, is a narcotic and acrid emetic, in large doses; but as used in medicine, that is, in small doses, is a powerful arterial sedative, that is, will reduce the action of the heart and frequency of the pulse; also expectorant, diaphoretic, alterative, and nervine. Used in Diseases of the Heart, as Hypertrophy, or Enlargement of the Heart, Habitual Palpitation, Rheumatism, Inflammation, and other affections of that vital organ, wherever there is too great an action or excitement. Also as a valuable expectorant, diaphoretic, and nervine in Affections of the Lungs, Chronic Pleurisy, and painful Local and Inflammatory Diseases, Spasmodic Affections, Nervous Irritability, Chorea, Epilepsy, Lung Fever, and the like. The best preparation is that called Norwood's Tincture; the dose is about ten drops, three to four times a day, and may be increased a drop or two each day, until double the quantity, or until sickness at the stomach is produced, or the pulse is reduced to about sixty beats to the minute. Should an over-dose, or too much be taken, and unpleasant symptoms produced, the free use of Brandy, with 30 or 40 drops of Laudanum, will soon afford relief and counteract its effect. It is mostly used in Affections of the Heart, and where there is too great an arterial excitement, and in such cases is a valuable medicine. Highly valuable in Pneumonia, or Lung Fever. Dose: of the powder, three to six grains; of the tincture, ten drops every three to six hours, increased gradually to twenty drops, or more, if necessary; of the alcoholic extract, half a grain, increased to one or two grains.

**Wild Cherry**—(*Prunus Virginiana*).—The Wild Cherry tree is found in great abundance throughout the United States, and is too well known to need description

Medical Properties and Uses.—The bark is the part used, and is tonic, slightly astringent, anodyne, and expectorant. It is an excellent bitter tonic, useful along with other articles, as Gentian and the like, as restorative bitters; also good along with astringents in Bowel Diseases, and with suitable expectorants in Affections of the Lungs. It should not be boiled, as it destroys, to a great extent, its virtue. An infusion may be made by adding 1 pint of Hot Water to 1 ounce of the powdered Bark, and let stand over night, when it will be ready for use, or may then be made into syrup. Used mostly in the form of bitters, along with other articles. Dose: of the infusion, half to a wine-glassful three times a day; the same of the bitters.

**Winter-green**—(*Gaultheria Procumbens*).—This is a small shrubby evergreen, known in different parts of the country by the names of Mountain Tea, Partridge Berry, Deer Berry, and Pipsissewa. It is found only in mountainous districts, dry barrens, and poor, sandy regions. It has a creeping root, sending up a few slender, reddish stems, but a few inches in height, which contain a bunch of leaves at the top and a few whitish flowers, followed by little scarlet-red berries.

Medical Properties and Uses.—The leaves are the part used, and are aromatic, astringent, diuretic, emmenagogue, and stimulant. Used in infusion or tea in Chronic Diarrhœa and Dysentery, Stoppage of the Urine, and in Suppressed Menses. The principal use of Winter-green, however, is in the manufacture of an essential Oil, by distillation of the herb, which is extensively employed for the purpose of flavoring Syrups, Mixtures, and Medical Compounds. The infusion of the herb may be used freely. Oil of Winter-green supplies the best Salicylic Acid from which Salicylate of Soda, the great Rheumatism Specific, is made.

**Witch Hazel**—(*Hamamelis Virginiana*).—Known also in some places as Winter-bloom, Spotted Alder, and Snapping Hazelnut. It is a small, crooked bush, from five to ten feet high, with smooth, grayish bark; leaves alternate, oval-shaped, three to five inches long, with numerous raised spots on the under side; flowers small and yellow, appearing late in the fall, followed by small capsules or pods, each containing two oblong, black seeds. Witch Hazel is found growing in most of the States, generally on the sides of hills, mountains, and near stony banks and by the sides of streams.

Medical Properties and Uses.—Both the bark and the leaves are used in medicine, and are astringent, tonic, and sedative. Used mostly in decoction, which is good as an astringent in Diarrhœa, Dysentery, and in Bleedings from the Lungs, Stomach, and Urinary Organs, taken freely internally; as a wash to old and foul Ulcers; as an injection in Leucorrhœa, Flooding, and Falling of the Womb, and as a gargle and wash in Sore Mouth and Throat. Dose: of the decoction, from half to a teacupful three or four times a day. The Witch Hazel may generally be had at the drug-stores.

**Wormwood**—(*Artemisia Absinthium*).—Wormwood is an herb cultivated in our gardens, very bitter and unpleasant to the taste, but, in many cases, a very good medicine. The herb is the part used.

MEDICAL PROPERTIES AND USES.—It is a stimulant tonic and anthelmintic. Good for Worms, and, in moderate doses, promotes the appetite, strengthens the digestive organs, and the whole system. Used in Dyspepsia, Intermittent Fever, Suppressed Menses, and Chronic Diarrhœa. Dose: of the powdered leaves, ten to twenty grains; of the infusion, half to a wine-glassful two or three times a day.

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# VEGETABLE MEDICINES;

## HOW TO COLLECT AND PREPARE THEM.

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**Barks.**—When the sap is running in the tree, so that the bark may be easily stripped from it, is the time for you to obtain what barks may be needed for family use, or if you should desire to obtain them for sale. After shaving off the outer portion, or rough part, the bark may be cut thinly and placed in a good position in the shade to dry.

**Roots.**—After the leaves are dead in the fall, or better in the spring before the sap rises, are the times to collect roots.

**Seeds and Flowers.**—These should be gathered and put in the shade to dry, only when they are fully ripe. When dried, they should be put in a nice dry place, and thus may be kept for several years.

**Medicinal Plants.**—To secure them in the greatest perfection, for medical use, they should be taken while in blossom, and carefully dried in the shade; but they may be gathered at any period before frost comes.

**Preparations—Extracts.**—To obtain the strength or medicinal virtues of a vegetable or plant, you should bruise and thoroughly mash them; then, perhaps, add a small quantity of Alcohol, extract the juice, and set in the sun to evaporate until it shall become thick like Honey, then put aside for use, in jars so tightly covered as not to admit the air.

**Teas,** otherwise called infusions, may be made by putting 1 handful of the herb into 1 pint of Boiling Water, and allowing the same to stand for a quarter of an hour. They should then be taken warm to produce perspiration. If taken cold, drink three or four times a day a full draught, unless otherwise directed or specified by your physician.

**Decoctions** may be made in the same way, but all the strength should be extracted by continuous boiling.

# NURSING THE SICK,

AND THE

# MANAGEMENT OF THE SICK ROOM

# THE NURSING PROFESSION.

Until the time of Florence Nightingale, nursing the sick and wounded was left to the Nuns, the Sisters of the Roman Catholic Church. Miss Nightingale saw the opportunity of women, properly trained, to take care of the sick and injured; she at once commenced, with wonderful energy, to acquire all the knowledge concerning the care of the sick and injured which she could obtain from the Nuns. She worked hard and made a careful study of the subject, and then came the opportunity for a demonstration of her ability and acquirements. The Crimean War occurred at this time, when more soldiers died from disease than from bullets; the need of women nurses was seen, and an appeal came from the scene of strife. Almost simultaneously with the tendering of her services to the Government, Miss Nightingale received an invitation, or rather a commission, from the British War Office, to take a body of women to the front as nurses in the field-hospital. The success of the expedition under such a leadership was assured, and so Miss Nightingale became the originator, and the Crimea the starting-place, of trained nursing as a profession.

To trace the history of the trained nurse from then to the present time, would undoubtedly be interesting, but this is unfortunately beyond the limits of this volume. It is sufficient to say that at present there is scarcely a large hospital in this country which has not in connection with it a training school for nurses. The course extends over a period of from two and a half to three years. Certain educational and other requirements must be fulfilled before a young lady can enter such a school. The course consists not only in actual bed-side nursing, but in a series of lectures and laboratory demonstrations, followed by graded examinations. Candidates for such a course should be young, bright, and above all other things, strong and healthy, for the life is a hard and trying one. It is readily seen that the trained nurse is a very different person from the so-called "experience nurse," and is naturally in a position to command a higher salary. Too much cannot be said in praise of this modern profession, and it deserves the commendation, sympathy, and assistance of everyone.

# HOW TO NURSE THE SICK.

THE importance of good Nursing, according to intelligent, scientific principles, has never been properly appreciated, otherwise more books would have been written upon the subject, and more attention given to a matter almost or quite as important as that of the Science of Medicine itself. A very large amount of the suffering endured by the sick, regarded as necessary symptoms of the disease, are, if the truth were known, more properly speaking, symptoms of Bad Nursing—the results of ignorance on the part of those who have the care of the sick. The great cause, the fountain source of physical evil in the world, is ignorance in regard to the Laws of Life and Health. Of this there can be no doubt. Disease itself is but the result of a violation of some of the Laws of Health. The symptoms of disease are but efforts of Nature in trying to overcome and remove certain derangements of the system, or parts of the system, caused by violation of the Laws of Nature and of Life. The symptoms of disease, so called—that is, the suffering of the patient—are greatly modified or enhanced by attendant circumstances and conditions. Nature, in her efforts to throw off disease and restore the system to its normal condition, often has much more than the disease itself to contend with, in the ignorance of the nurse, and the unfavorable surroundings of the patient. A patient with Typhoid Fever, for instance, would do better, and be much more likely to recover, in a clean, well-aired room, in a healthy location, than if in a tight, filthy room, where pure, fresh air was not allowed to penetrate. This, any one will admit. Yet, how seldom are matters of this sort thought of, or acted upon!

Much of the suffering, therefore, is unnecessary; it is not a legitimate or necessary consequence or symptom of the disease, but is the result of other causes, surrounding circumstances, or ignorance and carelessness on the part of nurses and attendants.

The office of nurse to the sick is a very important one, and quite as responsible as that of physician. The common understanding is, that its duties are limited to the giving of medicines according to directions, to the applying of poultices, plasters, and other external applications, and to "sitting up with" and "waiting on" the sick one. This, however, is but a small part of the true office of the nurse. The routine, and less important, the "mechanical" part so to

speak, of the duties of a nurse, may be performed by a person of the most moderate degree of intelligence; but the office of nurse means, or should mean, much more than that. It should embrace a comprehensive and practical knowledge of Hygiene, or the Laws of Health; or, in other words, a knowledge of the importance of cleanliness, of the right amount of warmth, of ventilation or pure air, of light, of the right kind of food, and how and when to give it, and of many other minor matters, though of more or less essential importance. Many of the "worst symptoms" which patients suffer, and often death itself, may be traced directly to the ignorance of the attendants upon these very subjects—to a want of proper ventilation, to too little or too much heat, to a want of cleanliness of the room, or of the bed, or of the patient, to eating too much or at improper times, or it may be to several of these causes combined. And this will be found to be true to a much greater extent in private houses, and among the people in the country, than in public hospitals. It is owing, as I have said, to the ignorance of nurses, and friends who attend the sick; and often to their doing, through mistaken kindness, what they ought not to do. Especially is this latter the case in regard to too much warmth, and in forcing or coaxing the patient to eat too much or too often.

By nature and by common consent, this kind and important office falls to the lot of woman. It is generally supposed that any woman, if she is not already a good nurse, may easily become such. This is a great mistake. As a general thing, women make better nurses than men; they are better fitted by Nature for the office than men are; and it is, probably, also true, that with proper instruction most women may become good nurses. But owing to neglect of the subject, as an art, and the little importance that has been attached to it by the public as well as by the learned, the most essential elements of good Nursing are understood by but few. Disease, or what we see and know of disease—the symptoms—is a reparative process; or, more properly speaking, a conflict between Nature and some deleterious agent or influence in the system. But the Art of Nursing, as generally understood and conducted, seems calculated to hinder rather than aid Nature in its effort to overcome, repair, and restore.

The Laws of Health, which should be understood and applied in the Art of Nursing the sick, are as little understood and observed in their relation to persons in health as they are in relation to the sick. The neglect or violation of the laws which govern life and health, will lead to disturbances and injurious consequences among the former as well as among the latter, though they may not always be so apparent nor so injurious. And all this is owing to a lack of knowledge—or,

if they have the knowledge, to carelessness—on the part of parents, nurses, and those who have the care of the sick and the well.

In other parts of this volume the reader will find a great variety of facts, of the first importance to those who would be intelligent in these subjects. The new treatise on "Sanitary and Domestic Economy," will be found very accurate, interesting, and satisfactory.

**Ventilation--Pure Air.**—If I were asked what is the most important thing to be observed as a rule of good Nursing, I would say. "See that the air the patient breathes is kept as pure as the external air, if possible, and yet without chilling the patient." This is one of the most essential and important things that can be attended to. Pure air is essential to the health of well persons; how very important, then, is it that persons enfeebled by disease should have pure fresh air to breathe, if we wish them to overcome the disease and get well!

In ventilating a sick room, you should be careful as to where the air comes from which you let in. Never air a room from another room that has been closed up tight for days or weeks previously, nor from a hall which is itself seldom, if ever, properly aired. The air which you let into the room should not come from a filthy locality, from an unaired, empty room, nor from a kitchen, nor underground or basement room. Endeavor, if possible, to get the pure air of heaven.

Vacant rooms are often kept closed up for weeks or for months, the fire place, windows, and all, and then used for sick persons, or for children to sleep in, without thinking it necessary to first secure them a thorough airing. This should never be done; it is absolutely dangerous. Neither should a sick room open into such a room, nor be aired from it. Air, in order to be pure, must circulate; agitation and movement are as necessary in air as in water, to insure purity and avoid its becoming stagnant, corrupt, and poisonous. Confined air, like standing, stagnant water, may soon become the source of disease and death. Never air a patient's room from a vacant or unused room that has been kept closed for an indefinite time previously; never put a patient, children, or any body into such a room, until it has first been well ventilated with pure fresh air, and, if possible, a fire made in it.

A fireplace, or grate, in a room, is greatly to be preferred to a stove. All rooms should have fireplaces, for health, if nothing else; and the fireplace should never be closed. Some people, as soon as the season for having fires is over in the spring, close up the fireplace of the parlor, sitting-room, bed-room, and every other room about the house, where a fire is not necessary. This is bad policy. A fireplace should never be shut up. It serves, when open, whether with or without

fire, as a most important ventilator, an escapement or draught, through which the air may constantly change. By opening a window a little, say at the top, by sliding down the upper sash a little, or if this can not be done, by taking out one of the upper lights, and a good brisk fire in an open fireplace, a fine draught and plentiful supply of fresh air can be obtained and the room kept properly ventilated. You need have no fear of the patient taking cold under such circumstances. Of course, I suppose the patient to be in bed, and well supplied with the necessary covering, according to the season and temperature of the weather. If you will notice, you will find that patients do not take cold while in bed. You need never be afraid of too much air, if your patient is in bed, and is properly protected with bed-clothes, as he should be. And it is better even to make use of artificial heat, by applying about the patient's feet, legs and body, warm bricks, heated irons, bottles of hot water, and the like, rather than not have the room constantly well ventilated with fresh air, fearing to make the patient too cold. The time when a patient is most apt to take cold—the time of danger, and when you are to be cautious about "draughts of air," and "cold rooms"—is when he first gets up out of a warm bed. At such times the system is very apt to be in a condition to take cold, or receive a "check of perspiration" (which is the same thing) very easily. The body is enfeebled from long confinement to bed, the skin in a lax condition from perspiration, the pores open, and altogether the condition of the patient such, very likely, that sudden contact with a cooler atmosphere, or coming into a draught, even but the slightest, of fresh air, may give him a sudden, severe, and dangerous cold. Great caution should be exercised in this matter of patients getting out of bed, and "sitting up," to see that it is not done at improper times, and that the condition of the atmosphere in the room at the time is right. If there is a draught through the room while the patient is in bed—as there may be with perfect safety—it should immediately cease on his getting up; if windows are up, or doors open, they had better be closed, for awhile, at first, at least. If the patient is likely to take cold, it will be during the first few minutes after rising. Too much caution, therefore, can not be exercised. And especially should a patient not be allowed to get up too soon after taking a sweat, or while under the influence of sweating and relaxing medicines. In such cases a room that would be sufficiently warm and perfectly safe and proper for the patient, while in bed, might be dangerous for him, if he should suddenly get up, being too cold, or having too much of a draught through it. This should never be forgotten or overlooked by those who have the care of the sick.

**Temperature—Warmth.**—Temperature, or a proper degree of warmth in the room of the patient, is of the first importance. It is essential that we have pure fresh air; in cold weather, such air is cold; hence we must see to it, that in securing one essential, we do not overlook and neglect another, second only to the other in importance. We must not render the room too cold for the health or comfort of the patient. Let it be understood as a rule, that in regulating the temperature, and securing proper ventilation, it must be so done as not to "chill the patient." It seems to be quite a common idea that in order to have the air in a room as pure as that outside or any thing near it, it must necessarily be as cold. This is a great mistake. A room can be kept at any degree of temperature desired, and yet properly ventilated and filled with a healthy atmosphere.

In maintaining a proper degree of warmth in a sick room, the vital powers of the patient must be considered, his strength, the temperature of his body, and his ability to resist or endure cold. These will be found to vary greatly according to different hours of the day; that is to say, the vital energies of patients, their physical warmth and powers of endurance usually rise in the after part of the day, so that a patient who may be quite feeble, cold and chilly in the morning and forepart of the day, may, in the same room and same temperature, be uncomfortably warm and oppressed in the afternoon and evening. This may be owing to the fact that the general temperature becomes warmer in the afternoon than it was in the morning; but it is mainly owing to the fact that patients themselves possess more vitality, strength, and warmth in the after part of the day, than they do in the forepart. Hence, windows may be open in the afternoon that it would be improper to raise before eleven or twelve o'clock.

And here I would remark that it is both proper and desirable that the windows in a sick room should be so arranged that the patient, if he can get up himself and move about the room, may be able to open and shut them easily himself. In fact, a sick room is seldom kept properly aired, or at a proper temperature, if this is not the case. The patient can, in such cases, generally tell best what he needs, whether air, warmth, or cold—Nature being the best and safest judge. The greatest evil of a tight, close room, where there is no circulation of air, is, that the patient is compelled to breathe over and over the same atmosphere, or his own breath, which becomes more impure the oftener it is breathed. The oxygen in the atmosphere is that which gives life to animated nature—that which makes it the breath of life—by purifying and revivifying the blood as it comes in contact with it when breathed into the lungs. Of course, every time the same air is breathed, it loses or gives off a portion of its oxygen, which goes into

the blood, so that it may thus soon become deprived of the greater portion of vitalizing property, and thus become unfit to sustain life, to say nothing of the impurities it receives from being repeatedly breathed. Patients are sometimes suffered to warm their room simply by repeatedly breathing their own breath. This will do it, if the room is tight and all fresh air excluded; but it is criminally wrong. Such air becomes actually poisonous, and the ignorance or negligence that will place the sick in a position where they are compelled to labor under a disadvantage that not only retards recovery, but actually endangers life, can not be too severely condemned. Could people be made to see and realize the influence which the breathing of foul air has upon the system, there certainly would be more attention paid to the proper airing of rooms, and especially sleeping rooms. Persons suffer more injury, it is said, during sleep than while awake, from breathing impure air. How important, then, to keep the air in our sleeping rooms, and during the night, as pure as possible! It would be better to suffer with cold, and have free ventilation, than to have a close, tight room warmed by repeated and constant breathing of the atmosphere in it. And if this is desirable for persons in health, how certainly is it so for the sick! If sick rooms can not be kept properly ventilated during the night—as sometimes they can not—they should be well aired in the morning. Go into a tight, close room early in the morning before it has been aired, in which two or three persons slept during the night, whether sick or well, and you will find the air any thing but wholesome or pleasant. This comes from a want of ventilation. The room is kept tight, for fear of making it too cold.

Patients usually suffer more from cold, or feel the cold more, in the morning, than in the evening. As I have said, the vital powers are lower in the morning than at other times, and usually higher in the afternoon and evening. If feverish at night, with burning hands and feet, they are almost sure to be chilly and shivering in the morning. It is the usual practice for nurses and attendants on the sick to heat the foot-warmer at night, or to place hot bricks, rocks, or bottles with warm water about the patient, but neglect to do any thing of the kind in the morning—being either too busy, or else not thinking it worth while. They should just reverse the matter. Artificial or external heat is much more likely to be needed in the morning.

But there are other things to be looked after in a sick room. Every thing in the room which can give off *effluvia*, tends to poison or render impure and make the air unhealthy which he is to breathe. There ought to be nothing, therefore, in the room, besides the patient, that can give off effluvia or moisture. The damp from towels, or any other article hung up to dry, goes into the air the patient is to breathe.

yet such little things are seldom thought of. One of the worst habits is that of leaving the chamber or vessel, with its contents, under the bed. Sometimes it is covered; but more frequently, if it contains only urine, it is not, and is left standing for hours unemptied, to saturate the under part of the bed and mattress, and fill the room with poisonous exhalations. A vessel for such purposes should never be left standing under the bed or in the room for one moment with its contents—though it contain nothing but urine—*without being well covered;* and if ever so well covered, it should be emptied as soon as possible, and well cleansed. Day or night, make this an invariable rule in a sick room. And the emptying and cleansing should be done, *not in the room*, but out of doors, or at the sink or water-closet. The habit of bringing in a bucket or slop-pail, and emptying the bed-vessel or chamber into that in the room, is most abominable! It should never be done, neither in the rooms of the sick or well. But, by all means, never do it in a sick room. You can not be too particular about this matter. As to fumigations and "disinfectants" about a sick room, I would say, as a general thing, avoid them.* But, by all means, let me impress upon the reader, upon every nurse, and upon every one who has any thing to do with taking care of the sick, that free ventilation, with pure, fresh air, a proper degree of warmth—not too much or too little, but graduated to circumstances, and to the condition and wants of the patient—and cleanliness, freedom from poisonous and injurious gases, evaporations, and bad smells, are essential requisites and conditions in a sick room. In order to ventilate a room through a window, and at the same time purify the air, and free it of noxious influences and gases, it is not sufficient to merely raise the window, or the lower sash. This will do to let in the fresh air, but it will not allow the impure air to pass out. In order that the latter may escape, and that a healthy ventilation may be established, there should be a small opening at the top of the window also; the upper sash should be let down a few inches, or, if that can not be done, a pane of glass, near the top, should be taken out. Then, if cool, fresh air is let in at the lower part of the window, the impure air of the room (being warmer, and therefore lighter) will rise to the upper part of the room and pass out at the upper opening, and along with it the impurities in the room, in the form of effluvia or vapors, etc. This philosophical fact should always be borne in mind, in attempting to ventilate and purify rooms. But the most important reason why persons should have pure or fresh air to breathe, well

* It affords us great pleasure to present to our readers the new and admirable scientific treatise, prepared by one of our most distinguished authors for this work, and given under the head of "Sanitary and Domestic Economy." The whole question of disinfectants and deodorizers, is fully discussed and made plain.

persons as well as sick, is owing to the fact, as I have already stated, that it is from the oxygen in the air we breathe that the blood is purified, vitalized, kept in a healthy state, and life maintained. "In the blood thereof is the life." This fact was known in the days of Moses as well as it is now; but it was not known how or why the life was in the blood, how the blood was purified, and how it not only sustains life, but how also it circulates through every part of the system, and builds up and makes the entire body. It was not known then, as it is now, that though "the life is in the blood," yet that it is the air we breathe that quickens and gives the life to that blood; and that without this vitality—breathing this oxygen or life-giving principle—the blood could not sustain life for a single hour. When persons breathe bad air—air that is deficient in oxygen from having been breathed over—or where the oxygen of the air has become deficient from any cause; or when the difficulty is caused by sudden cold settled upon the lungs, or by a filling up of the air-cells of the lungs with mucus, and the like, as in Pneumonia, Lung or Winter Fever, and other similar diseases, so that the blood can not be properly oxygenated—the consequence is, that the blood soon becomes weak, impure, and deficient in life and energy, and the person is liable, and quite likely, to take some form of disease of the low Typhoid type. How often do Lung Fevers, Winter Fevers, and diseases principally affecting the Lungs, terminate in *Typhoid* Fevers and conditions? And how often do Typhoid Fevers, Ship Fevers, Camp Fevers, and the like (all being the same in cause and character), result from over-crowded apartments, from sleeping or being confined in close, damp rooms, as n the holds of ships, in damp tents filled with soldiers, in crowded military prisons or jails; all showing that a deficiency of pure air is the main cause. The blood requires a certain, constant supply of oxygen, in order to maintain life and health; it must receive this through the lungs, by coming in contact there with the air, as it is breathed into the lungs; and whenever it fails to receive that supply, whether it be owing to the impurity or deficiency of the air itself that is breathed, or to a defect and inability of the lungs themselves, it matters not, the consequence will be the same—impurity, debility, weakness of the blood, and a consequent loss of vitality, of life and energy in the system. And if continued far enough, will result in disease of a low, weak, corrupt, Typhoid character, as are all diseases which result from a poverty or weakness of the blood—in other words, from a deficiency of oxygen in the vital fluid. A good thermometer should be kept in every sick room, and the temperature, as a rule, should be kept as near as possible to 70°—variations of two degrees either way from this fixed standard are permissible. The temperature of the patient is an im-

portant guide to his condition, and to determine this, the temperature should be taken every three or four hours, with a small, specially constructed, so-called clinical thermometer. The temperature may be taken in the mouth, rectum, vagina, or under the arm. The rectal temperature is highest; under the arm it is lowest. After each use the thermometer should be cleansed with cold water and soap (not hot water), and then kept in a solution of Carbolic Acid, rinsing it before using.

**Health of Houses.**—The Laws of Life and Health are inflexible: they are as fixed and certain, and as plain as any other Laws of Nature. And they are, if we only knew it, as wise and beneficial as they are inflexible. Yet we violate those laws, and suffer the consequences; and then blame Providence, or lay it to the inscrutable wisdom or purposes of Providence. It is very common, even among educated people and physicians, and among the religious it is often considered an act of piety, reverence, and Christian humiliation, to ascribe al disease, sickness, accidents, and suffering generally, to "the inscru table wisdom, design, and purpose of Providence." This is a very good way to hide our ignorance, and may serve as a source of consolation in bereavement and troubles, when it is too late to remedy the matter. But it is all the sheerest absurdity and ignorance, to call it nothing worse; and besides ascribing, by implication at least, a dishonorable character to Deity, it is calculated to do great injury, by leading people to neglect to study and find out certain laws, and their operations in relation to life, health, and disease, which are of the utmost importance to them. Disease is caused by inattention to God's laws. He has established certain laws and conditions, and we believe them to be the best that could be established; it is for us to find out and understand those laws, and try to live in accordance with them; we violate them, however, and suffer the consequences, and then blame Providence! But Providence does not perform miracles in our favor, so that we may escape the natural penalty for our transgression. Our ignorance will not help us. The Laws of Life and Health are as fixed as the Laws of Gravitation; they make no allowance for ignorance. If we violate them, it is all the same whether we do so knowingly, or through ignorance; the result is that we must suffer the consequences.

Perhaps the Laws of Health are as much violated, or as little con sulted, in the location, arrangement and construction of dwelling-houses, as in any thing else. Houses that are built for the use of the sick, as hospitals, infirmaries, and resorts for invalids, of course, should be constructed in accordance with the best hygienic rules, and with a view to securing all the advantages possible favorable to the health of the inmates. This, however, is not always done; indeed, we fear it is but seldom done. But as I am writing rather for the benefit of those who inhabit private houses, I will leave the matter of hospitals

and public institutions for some other occasion, or some other writer. This book is for the use of individuals and families, and more especially for those in the country and smaller towns, than for those who inhabit large cities. In cities, where ground is valuable, and rated by the foot or the inch, and houses crowded together as compactly as possible, persons building can not have the privilege of arranging their houses and rooms as they please, but must generally do the best they can. Though even this, probably, is very seldom done. But in the country, and in the smaller towns and villages, such is not the case There, persons can generally plan and arrange their houses as they please, even to locality; and can secure all the advantages that may be desired from air, sunshine, light, and healthy location.

All dwelling-houses should be so constructed and arranged as to secure at all times an ample share of fresh air, of light, and of sunshine; and in addition to this, they should be located so as to insure easy drainage, so that the cellars, if need be, and the premises can be easily and perfectly drained. This matter of drainage is a very important one. Pure water is also an important item in a hygienic point of view. (For practical modes to attain these desirable ends, see treatise on "Sanitary and Domestic Economy.") Cleanliness is also essential to health—cleanliness of person, and cleanliness of the house, the room, and the surrounding premises. Plenty of water is necessary in order to secure cleanliness; but the character of the water should be looked to. Water is an essential of life, and it should be made a point of the highest and first importance with every one to have good, pure water for all domestic purposes. The best water, unless it be soft spring water, is pure rain water, contained in good cisterns. Every house should have a good cistern. Experience has abundantly shown that, during the Cholera in this country, those persons who used cistern water (or rain water contained in cisterns), very generally escaped that dreadful disease; while, on the other hand, it prevailed most extensively and fatally in limestone districts, and among persons who used hard limestone water exclusively. Pure soft, or freestone water, well or spring, is next best to cistern rain water, not only during Cholera times, but at all times and for all purposes. But go into the country and see the kind of water people very often use—sometimes from wells, sometimes from a sort of springs, and not infrequently from pools, ponds, and dirty creeks—and you need not be astonished that they have constantly more or less sickness in the family. It is astonishing how little attention is paid to this matter of good, pure water, in some parts of the country, and by some people in all parts of the country. How often, in the country, do we see the well in close proximity to the barnyard, so that the filthy drainage can pass directly into the water.

There is more danger, more injurious effects received from *drinking* impure or bad water, than from any other way of using it. Using it for cooking purposes is not so bad, by reason of the changes it

undergoes in boiling, which tend to purify it to some extent, and to destroy or get rid of the injurious properties which it contains. But it is a dangerous experiment at best to use bad water, and should never be done where it is possible to avoid it.

Have your cisterns so built that the mouth of each shall admit of free circulation between the outer atmosphere and the air inside. This may be done by "bricking up" a chimney, from the inner surface of the cistern, to the hight of a foot or more above ground, and then covering the opening with a net-work of wire attached firmly to a frame, which should cover the brick. The object may also be attained by using a wooden box. Thus you may always avoid having the water smell badly, as it surely will, at times, if the cistern is kept closed tightly. Have your cistern *cleaned out* at intervals of a year, when the water is low.

In constructing houses, care should be taken to so arrange the rooms, halls and windows, that fresh air may at any time be introduced directly into any room or part of the house. This may easily be done by any good architect or builder, if to do so is made an object by the proprietor. If people wish to have health, or to regain it when lost, they must conform to certain cardinal principles, or they need not expect it. Air and water are essentials of life, while upon their purity may depend the amount of health we enjoy with that life, and even life itself.

Light is also one of the essentials of health. A *dark* house may always be said to be an *unhealthy* house. A sick room should never be a dark room, unless it should purposely be made so on account of disease or weakness of the eyes, or some such reason. Patients do not recover well in dark rooms. In constructing houses, therefore, regard should be had for securing light for all the rooms, as well as to secure fresh air. It is not necessary that the sun should shine into each room, but it should shine upon the house outside—there must be a chance for the free light of heaven to penetrate the rooms. It is as important, in point of health, that a room which may be used only as a sleeping room at night, may be freely penetrated by light during the day, as if it should be used only in the day time. Light is conducive, nay, is essential to health. This you may see by placing a plant in a dark place. Though it may have plenty of water and air, it will droop, become pale, tender, feeble, and eventually die. A room that is always dark can not be healthy at any time, nor for any purpose. Darkness in a room breeds disease. Such a room is not fit to live in, to sleep in, nor, by any means, to be sick in. Nurses, and those who have charge of the sick, cannot be too particular about light, if they would see their patients recover rapidly. Sunlight is a powerful germicide.

Drainage is a very important matter, yet how few people ever think of it! In cities, the lack of proper drainage is often an intolerable

nuisance, as well as the fruitful cause of sickness. While in the country, and small towns, where each farmer and householder controls the matter of drainage about his premises for himself, and is therefore responsible for the consequences of neglect, there is very little attention paid to the matter. We may suppose, indeed, that it is seldom thought of. If water gathers in pools or puddles about the house, it is allowed to stand and become stagnant, and emit an unhealthy, perhaps poisonous vapor for months, or until it passes off by evaporation. If cellars are damp, or water gathers in them, it is looked on as a matter of necessity, or that can't be helped, and so must be put up with! And yet, if these people have the Ague, or Bilious or Typhoid Fever, they will wonder how it happens, and why it should be so!

No water should be allowed to remain on or about the premises, to become stagnant and breed pestilence, miasma, poisonous vapors and deleterious influences, as stagnant water is sure to do. Not even should dampness be allowed under or about the house. I have seen cellars so damp, even in dry weather, that they must have constantly filled the buildings above them with a most deleterious if not poisonous atmosphere; and yet the inhabitants of such houses never dreamed that they were running any risks, or in any way violating the Laws of Health. When the "sickly season" sets in, however, they generally pay the penalty of such violations. Ignorance of these laws, as I have said, is no excuse. It is not uncommon, indeed, to find cellars in low, flat localities, with standing water in them half the year round! How can people hope to have health when such things are permitted?

Not only should cellars be kept dry, but no rotten, decayed or decaying vegetables should be allowed to remain in them—not a day nor an hour. Though the bad effects may not be seen or felt at once, the seeds of disease may be thus sown, that will afterward result in death or loss of health. It is better to have no cellar at all to your house than to have a damp or wet one; and if you can not have a dry cellar—if the nature of the ground is such that it is impossible to prevent water from rising in it—as I know it is sometimes—and you can not *drain* it, so as to prevent it from being damp most of the time—then fill it up. If the location, however, is such that it can be drained, then to do so might remedy the matter. But if this can not be done, then fill it up, or build you another house without a cellar. It is far better to have no cellar under your dwelling, than to have one that may prove a source of pestilence, disease, and death.

Next to damp, filthy cellars, are puddles, pools, and bodies of stagnant, filthy water about the premises. Nothing of this sort should ever be allowed. Fresh, living, running water, close to the dwelling,

can do no harm—or is not likely to; but stagnant water, especially in warm weather, can not be otherwise than unhealthy. Proper drainage can always remedy such evils.

Keep the premises *under* your house always *dry;* do this whether you have or have not a cellar under it. Allow no water to run under the floor from the outside. A little ditching and draining around the house will prevent it. Have such arrangements that when it rains the water will immediately run off from about the house (instead of under it), the further the better, so that it may not stand in puddles or ponds any-where about the premises—and you can then have it to say that, in this respect at least, you have not *invited* disease to enter your household.

But with all the other essential conditions and prerequisites to good health about a house, it is impossible to get along properly without cleanliness. People are so unaccustomed to consider how to make a home healthy, that we have sought out one of the most accomplished scientific men in the United States, and had him present a great amount of important information in detail, as will be seen by reference to future pages. Many do not think upon this subject, but take every disease that comes as a "visitation from the hand of Providence;" a thing to be "resigned to;" or if they do think of the matter as a duty, or a thing possible to be accomplished, they are very likely to commit the worst kind of mistakes in their attempts to accomplish it, such is their ignorance on the subject. But the great evil, especially in the country, consists in doing nothing, taking no pains or measures whatever to maintain cleanliness about the house, as a means of health; I mean outside and around the house, and on the premises. Too many people seem entirely indifferent to the matter. But they suffer, nevertheless, for their ignorance or their indifference, when the "sickly season" comes round!

It is as important that the kitchen and the back yard should be clean, as that the parlor and the front yard should be. And these may be all that could be desired, and yet there may be a filthy pig-pen, or cow-pen, or stable, near the house, that shall prove not only a nuisance, but a never-failing cause of disease! But I need not specify. Let it be understood that cleanliness is as important *about* and *around* a house as *in* a house; as a sanitary measure or condition of health; and that if people would enjoy the health that is within their power—the health which they might enjoy if they would—they must observe the laws of cleanliness, not only as to their persons, not only as to the rooms which they inhabit, but on the premises where their houses stand. Let it be understood, then, that plenty of fresh, pure air, accessible to all rooms of the house, free and unobstructed light, pure water, and dry and clean premises, are essential conditions of health,

in all households, and in the arrangement of all buildings in which human beings are to live. These are conditions which Nature has prescribed, and when we violate or neglect them, we must suffer the consequences.

**Attention to Little Things.**—One of the most important qualifications in the art of good Nursing, consists in attention to *little things*, and in so arranging that your rules and regulations about small and seemingly unimportant things shall be strictly carried out; and this, too, as well when you are absent from the patient's room as when you are present. No nurse can be always present; nor is it necessary, providing she so manages that the right things shall be done in her absence as well as if she were present and did them herself. The good, the wise, the thoughtful nurse will think of these things, and when she must be absent—as often she must—will so arrange and provide that her patient shall receive no detriment on account of her absence.

We can not, of course, lay down rules that shall govern in all cases. But a few illustrations will show what we mean. The reader can continue the subject, and improve upon the suggestions here given. Suppose the nurse goes to supper; but not having left proper instructions with the person who is temporarily in attendance, in comes some one with a message for the patient, it may be a letter, or a verbal message, but one which the patient should not have at that time. Yet the messenger, after dashing into the room, divulges the message, and it throws the patient into a state of great excitement; he worries all night about it, and the result is, he is set back several days in his recovery. This is but an example; a score of cases of a similar nature, or that may be owing to a like *neglect*, can easily occur—and all because the nurse or person in charge was deficient in forethought, and failed to properly instruct her substitute. A person may enter the patient's room through mistake, because the door was left unlocked; it may be the washerwoman hunting for the dirty clothes, or it may be a strange washerwoman, who comes bolting into the room, making a great noise, and perhaps startles the patient from his first sleep, and so frightens or excites him, that he can sleep no more, the effect being very injurious. The patient himself may think nothing of it, and for the present may feel none the worse for it; but all such things have an injurious effect, sooner or later, and sometimes are fatal. The nurse did not provide that her patient should be as well protected and cared for in her absence as if she were there; she failed to properly instruct her assistant, and to guard against the possibility of a stranger bolting into the room, through mistake or otherwise—against improper or unpleasant intelligence being commu-

nicated to the patient—against two or three talkative visitors imposing themselves upon him, and various other possible things of this sort, occurring in her absence; at supper, or other meal; or while on a longer absence. Had the regular nurse been present, she would have known just what to do in the emergency, and would have prevented all evil consequences or disturbance; she should have so instructed the person left in her place, that what ought to have been done would have been done. That is what is meant by managing the affairs of a sick room. And that is what a good nurse—one who understands her business—will see to having done. That is what is meant by attending to the little things.

A sick person ought never to be "surprised;" and with proper management never need be. It is not enough that the nurses, or those who attend specially to the sick, understand what is proper and what is not; the servants about the house, and every one else, should be properly instructed, so that they will not, in the temporary absence of the nurse, let in an improper visitor, or turn off one that should be admitted; that they will not improperly deliver or withhold a letter or message; that they will not open a window or passage communicating with an unhealthy, unaired or filthy room, dirty closet or cupboard, a newly-painted room, an uninhabited musty room, and the like, through the mistaken idea of *ventilation*, or *airing* the patient's room. Such things are often done—are very liable to be done—in the absence of the intelligent nurse, if the person or persons left in charge have not been properly instructed. The prudent nurse will always see that they *are* thus properly instructed; it is a part of her duty—as much so as to attend properly to the patient, to his wants and necessities when present.

To be "in charge," that is, have the management of a sick room, means not only to carry out the proper measures yourself, but to see that every one else does so too; to see that no one, either ignorantly or intentionally, neglects or prevents such measures from being done properly and certainly. It is neither to do every thing yourself, nor to appoint a number of persons to do each duty—but to insure that each does that duty to which he or she is appointed. This is the meaning, above all, which is properly attached to the word "management," and should be so understood by those "in charge" of the sick whether of numbers of sick, as in hospitals, or of individual patients. And it is generally less understood, and more neglected, where there is but one patient than where there are a great number. One sick person is often "waited on" by three or four persons less properly, and is really less cared for, than half a dozen patients who are attended by but one person; and all for want of proper "management" by the

person in charge. It is often said that there are few good servants now. It would be better to say that there are few good mistresses.

**Quiet to be Maintained.**—Noise is a great enemy to the sick, at all times, and sometimes is the cause of fatal consequences. But it is impossible to avoid all noise, and therefore we must do the best we can. And I will here say, at the outset, that what may properly be termed *unnecessary* noise in and about a sick room, is far more injurious than that which is necessary or unavoidable. Indeed it is that which does the mischief—the noise that is unnecessary, and that might and should be avoided—and it is about that that I wish to speak.

It is astonishing how a patient will stand the regular, customary noise about the house, the noise in the street, rumbling of wagons, and the like, or the work even of the carpenter upon some portion of the house, or any other loud noise in the regular course of ordinary business; while talking in the next room, the creaking of shoes, or romping of children in the hall, or even whispering in his own room, will put him all "out of sorts," or so disturb him that he will not recover from it for days. So far as mere noise itself is concerned, it is the unnecessary, the avoidable and unusual noise, I repeat, and would impress the fact, that does the injury. Let the nurse, the physician, and all who have charge of the sick, understand this fact once, and it will be easy to apply the remedy. If the noise is both *unnecessary* and injurious, it can and will be prevented.

There are some patients, especially in certain conditions, where the brain is affected, and while under the influence of certain medicines, as Quinine and Opium, who will be affected by mere noise of any kind. The hearing at such times is very acute, the brain and nervous system very sensitive, and noise of all kinds painful, and, of course, more or less injurious. But in all ordinary cases and conditions it is the unnecessary, irregular, and little noises that annoy, disturb, and injure.

Again: Any noise or conversation that excites apprehension, anxiety, or expectation in the mind of the patient, is of the most injurious kind. Of this kind, perhaps the worst, most cruel and thoughtless, is that of physicians consulting and talking with members of the family, the nurse, or others, outside the patient's room, in the hall, or an adjoining room, just loud enough for the patient to hear that conversation of some sort is going on, but too low or too distant for him to understand what is said. Physicians ought to know better than this; many do, but many do not, or if they do, are too heartless to care. The patient knows or believes that they are talking about him, his condition, and if his case is bad, he is sure to think that it is so

bad that they are afraid to let him hear what they say or think. All this is cruel, as well as most injurious.

Then whispering—a very common practice—in the patient's room, is another great evil. A friend calls, or perhaps several, to see how the patient is doing, and for fear of disturbing him—thinking, it may be, that he is asleep—they set to, along with the nurse or person in attendance, and hold a conversation in a whisper! A nurse that will allow this, for one moment, is not fit to wait on the sick. No whispering should ever be allowed in the sick room—unless the patient be an infant, too small to understand or think that they are talking about it. Nothing should be said in presence of a sick person that is not proper for him to hear, nor in such a tone of voice that he can not hear and understand it. No effort should ever be made or permitted, in the patient's room, or near it, to say any thing in such a way as that he shall not hear it, or that he can think that it was done so he should not hear it. Every intelligent nurse can understand this, and the reasons for it, and can make the proper application. A patient hearing low conversation in an adjoining room, or whispering in his own, will necessarily conclude that it is about him—something which would excite or depress him, if he heard it—something about him which they are afraid to let him know; this he will think, no matter what they talk about. The effect, of course, must be worse on him than if he heard and understood all they said. Besides all that, whispering, low talking about a sick room, and seemingly studied efforts to prevent noise—yet all the while making an unusual and unnatural noise—is far more annoying and disturbing to a patient, than ordinary talking and walking. The rustling of a silk dress, the jingling of keys, the creaking of shoes, are bad — worse than much louder noise.

Sudden loud, unusual noises, of course, are to be guarded against as much as possible. A patient should never be roused from sleep by noise. Never allow a patient to be waked, neither intentionally nor by accident, is a paramount rule in all good Nursing. If a patient is roused out of sleep by some sharp, loud, or horrid noise, he is not likely to sleep again that day or night. Guard against waking a patient soon after going to sleep; if he has been asleep two or three hours, it will not be so bad. It is a curious fact, but one easily accounted for, that if a patient is waked after two or three hours of sleep, he is much more likely to go to sleep again, and sleep well, than if waked after a few minutes of sleep, or any time short of an hour. A patient, therefore, waked in the early part of his sleep, loses the power to fall asleep again. A person in health who allows himself to sleep in day time, will be unable to sleep at night. Not so with the

sick, but the reverse, as a general thing; the more they sleep, the more and better they will be able to sleep. When your patient, therefore, is sleeping, guard especially against sudden and unusual noises, and every thing that would be likely to wake him, during the early part of his sleep. After he has slept two, three, or more hours, it is not so important.

A good nurse will see that the door is not suddenly slammed; that doors and windows do not creak in opening and shutting; that noisy children are kept out of the way; and that no unnecessary noise of any kind is permitted, in the room or on the premises. The exercise of a moderate degree of common sense is all that is required in this, as in most other matters.

**Decision—Punctuality.**—Conciseness, decision, and punctuality, are of the greatest importance with the sick. Whatever your doubts or your hesitation, never communicate it to them, never let them know or see any symptoms of it in what you say or do. "Let your thoughts and your words to them be concisely and decidedly expressed. Let your doubt be to yourself—your decision to them." People who can not keep their thoughts, their doubts and apprehensions to themselves, and can not keep from showing them even in their manner, looks, and answers, ought never to be with the sick. If you have any doubt of the patient's recovery, you should not only not say so to him, but you should not show it in any thing you say or do, or fail to say or do. You should not hesitate, nor evade, nor appear undecided. If you do, he will interpret it as unfavorable to him, and your hesitation, or seeming indecision, to a want of courage to tell him what you really think. Give him no reason to suspect any thing of the sort in you. Whatever you say, whatever you act, whether favorable or unfavorable, let it be concise, decided, and without equivocation—showing by your manner that you believe what you say. Irresolution is one of the things that all patients dread. It is better to tell the worst than to hesitate and show irresolution. A patient will stand any thing better than irresolution in an attendant.

When you leave a sick room, or when you come in, do so quickly; not suddenly, not with a rush; but do not hesitate. Don't let the patient be wearily waiting for you to go out or come in. These suggestions will apply to visitors as well as to nurses. How often do visitors loiter and hang about the door, or bed of the patient, after they have risen to leave, talking either to the nurse, members of the family, or the patient, all the while going, but still do not go. All this is terribly annoying to a patient, and, of course, injurious.

Punctuality, on the part of a nurse, is of the utmost importance; punctuality in every thing she has to do, or to see to, or that she may

promise to do. If a patient has to keep watch or remember when it is time for him to take medicine, and has to tell his nurse, he might be nearly as well off without a nurse. The patient should have no concern nor anxiety about the matter; he should be made, by the punctuality of his nurse, to feel and know that all will be properly and punctually attended to, without his giving himself any concern on the subject. So with giving him his food. So with every thing. Do not let a patient think that he is neglected, or his wants forgotten. How often is it the case that a patient will ask, "Is it not time I took another of those powders?" or of something else, as the case may be, and the nurse, or person in charge, will say, "Oh! I declare I forgot; it's now half an hour past the time." Such things are common; and yet they are most reprehensible. They are cruelly and wickedly wrong, and may do positive, irreparable injury to the patient, besides cause him to lose all confidence in the nurse. By all means, be punctual and exact in giving medicine, "according to directions."

If you go out to be gone a specified time, tell your patient just how long you will be gone, and return at the time you say you will. It will frequently happen, as a matter of course, that a nurse must go out to be gone some time. In such cases she should always inform the patient about it, telling him just how long she will be gone, when she will be back, etc., no matter how long or how short the time may be. Never deceive a patient by slipping away without letting him know it, nor by staying longer than you tell him you intend to. Do not say you will be back in a few minutes, and then be gone all day or all night. Anxiety, apprehension, waiting, uncertainty, disappointment, being deceived, surprised, frightened, and the like, are all to be carefully avoided, if possible, as they may do a patient more harm than any amount of physical exertion. It may occasion a relapse, and set the patient back days or weeks, and perhaps endanger his life

Be punctual in little things as well as in big things. You will then soon inspire in your patient confidence in you, so that he will rest easy at all times, feeling sure that you have his interest and welfare at heart, and that you will take care of him. He will then not be afraid to go to sleep for fear he will sleep too long and forget to take his medicine, or that something will go wrong. Punctuality, let it be understood, is one of the most important qualifications of a good nurse.

When you speak to a patient, or talk with him, always do so in front of him or in his view. Never talk to him in such a way that he has to turn his head to see you. Every body involuntarily looks at the person speaking, or desires to do so. Though it may be painful to a patient to turn his head, yet he will do so, if it is necessary, in

order to see you when you talk to him. He should never be compelled to do so.

And if you are holding a conversation with a sick person, especially if on business or upon a subject which is of interest to the patient, always sit down, and, of course, in the patient's view. If you stand, very likely the patient will have to be continually raising his eyes in order to see you, which may be nearly as bad as having to turn his head round for that purpose. Besides, by standing, you are apt to appear in a hurry, and would like to get away as soon as you can. If the conversation is at the request of the patient, if he has something to communicate, to command, or to talk about, by all means sit down, give complete attention and full consideration to what he has to say, and then go away the moment the subject is ended. Few things are more wearisome to a patient than to be asked to repeat something he had carefully said before—as, "What did you say?" and the like; wholly owing to a want of attention on the part of the listener. Such things are provoking to a well person; but to a sick person are absolutely injurious as well as annoying.

**Importance of Change and Variety.**—Few persons, perhaps, unless it be old, experienced nurses, are aware of the importance of variety to patients—especially to those long confined to a sick room—variety of scenery, of objects to look upon; changes of the position, of the bed, of the furniture in the room; new and pleasing objects to look at, as engravings, paintings, flowers, and the like.

Very often a change of room, where a patient can bear to be moved—especially for convalescents—will be found of great benefit. And the beneficial effects of beautiful objects, and of a variety of objects, especially of brilliant colors, to persons long confined to the monotony and sameness of a room, can hardly be appreciated by persons in health, and free to come and go as they please. And when patients crave a change—some little alteration or rearrangement of something in the room, which to us may seem very trifling, the moving of the bed to another part of the room, or near the window, or turning the head in another direction, or desires some trifling object to look at—we are too apt to say it is a mere "fancy" of the patient, and treat it with indifference or levity. Patients, doubtless, have what we call "fancies," but such fancies are often the most valuable and certain indications of what they really need, and what, trifling as they may seem to us, would greatly aid in their recovery. It would be well, indeed, if persons in charge of the sick, would watch these so-called "fancies" more closely, and, as a general thing, give heed to them more than is usually done. Patients often crave what they should not have to eat, but a change of position, or something pleasant to

look upon, will frequently be of essential service. The voice of Nature—generally a safe criterion—may well be heeded.

Miss Nightingale, speaking of this subject, in her book on *Nursing*, says: "I have seen, in Fevers—and felt, when I was a patient myself—the most acute suffering produced from the patient not being able to see out of the window, when the view to be seen was nothing but a clump of woods. I shall never forget the rapture of patients over a bunch of bright-colored flowers. I remember, in my own case, a nosegay of wild flowers being sent me, and from that moment my recovery became more rapid. People say the effect is only on the mind. It is not so. The effect is on the body, too. Little as we know about the way in which we are affected by form, by color, and by light, we do know this, that they have an actual physical effect upon the body. Variety of form, and brilliancy of color, in the objects presented to patients, are actual means of recovery."

Of course, the mind and the eyes should not be overtasked. The variety presented should be *slow*, as well as pleasing. If you show a patient a great number of engravings, for instance, in quick succession, the beneficial effects are apt to be lost; and not only so, but actual harm may be done. Two chances to one the mind will become wearied, confused, and the patient become indifferent, faint, feverish, or even sick; but give him one, or hang one up where he can see it, one each successive day, and the variety will be pleasing and beneficial.

Do not be afraid to place shrubbery, plants, and bunches of cut flowers in the patient's room. There is a "learned ignorance," common among nurses and physicians, that such things are injurious, on account of the carbonic acid they are supposed to give off. Of course, if you should fill a room, like a hot-house, with plants and flowers, some evil effects of this kind might be expected. Besides, plants only give off carbonic acid at night; and even if they should be left in the patient's room at night—which is not at all necessary—the amount that would be given off by a good sized plant, or bunch of flowers, would hardly poison a fly! As to cut flowers, the actual effect is the reverse of that feared; if they are placed in a tumbler or vase of water, as they generally should be, they absorb carbonic gas, decompose water, and give off oxygen gas—which is a healthy process.

Some flowers, of course, are not healthy; the Lily, for instance, the smell of which is said to depress the nervous system; so of the Jessamine, and some others. Nobody would be likely to bring into a sick person's room a bunch of Jimson blossoms (Stramonium), nor any flowers that had a disagreeable, faintish, or sickening smell

though they might be ever so handsome and brilliant. But the Rose, the Pink, the Geranium, and such flowers of grateful smell, are beneficial on account of their healthful and agreeable fragrance, as well as on account of their beauty and brilliancy of color. Brilliant colors are to be preferred; and while red is perhaps the best color, blue is the poorest. Blue seems to be a depressing color to the sick.

Well persons vary their own employments and objects of attention several times a day; yet they will let a poor bed-ridden patient lie day after day in the same room, staring at the same blank, dingy walls, without any change of objects about him, without any variety to enable him to vary his thoughts. A patient can just as easily move his leg when broken, as change his thoughts when no external help from variety of objects is given him. This neglect of the wants of the mind is one of the main sources of suffering to the sick. Well persons are too apt to overlook this matter, and to charge patients with being "peevish," and "fretful"—"not knowing what they want," or "what is good for them;" to say that they "ought to have more self-control," and should "dismiss painful thoughts" and "foolish longings," which only "aggravate their disease," etc. All such talk and feeling as this arises either from gross ignorance or cruel indifference, either of which unfits any one for taking care of the sick. Almost any sick person, if he behaves but decently well, exercises more self-control, every hour and day, than one in ten of well persons, and more than any one can ever know till he is sick himself.

Suppose you are up all night, and instead of being allowed your cup of tea during the time, or your cup of coffee in the morning, you are told that you ought to "exercise more self-control," what would you be likely to say? The patient's diet may be well cared for; it is not hunger that troubles him, except hunger of the mind. The nervous system is out of order; the mind wants relief, or exercise. This state of mental suffering, of ennui, and weariness of both body and mind, can often be relieved by a little care in affording a pleasant view, an agreeable variety of objects, and of pretty things to look at. How often do patients crave the "return of day!" This is generally nothing but a desire for the light of day, the remembrance of the relief which a variety of objects before the eye affords to the harassed sick mind. How sensible is the relief, when sufficient strength has returned for a patient to be allowed to do a little sewing, or knitting, or writing, or any little labor; it relieves the mind, and improves the body, at the same time! Bear in mind that you have all these varieties of employment, and much more, while the sick can not have

them, and then bear in mind and try to obtain for them all the pleasant varieties which they may innocently enjoy.

**On Food for the Sick.**—The most difficult part of Nursing, or taking care of the sick, is that in regard to their diet—in knowing what food to give them, in being able to furnish it, in knowing how to prepare it properly, and when to give it. There is a vast amount of ignorance upon this subject among professional nurses and the people generally.

One of the most common errors which a physician meets with in his practice, is the idea, which seems to prevail especially in the country, that as soon as a person is taken sick he must commence being stuffed and gorged with food at once. How common is it, after the physician has examined his patient, prescribed, given directions, and is about to leave, for the anxious mother, sister, or friend in attendance, or several of them together, to ask: "What shall he eat, Doctor?" "What can he eat?" "How often and when may he eat?" And "Will it hurt him to eat this thing or that thing?" and various questions of that sort—showing generally a greater concern about the patient's eating than about his taking medicine, or being subjected to proper treatment in other respects. This is a great error, and sometimes does harm; yet it is one that can easily be pardoned. It flows from the purest and best feelings. Every body knows that the well live by eating, and it is but natural to suppose that the sick must do the same; that when persons become sick they can not, perhaps should not, eat the ordinary food of well persons—hence the desire and anxiety of the friends of the sick one to find out what he can or can not eat. It is always right and desirable that nurses, and all who have the care of the sick, should find out and understand (indeed it is one of the highest and most important duties) what is proper for their patient to eat, how to prepare it, and when to give it. I say nothing against this, but, on the contrary, commend it as a matter of the first necessity. But it is a mistaken idea, this over anxiety on the subject, that the patient must at once commence eating something, and must continue to eat about the same amount which he would were he in health.

There are more patients and sick persons injured, and consequently more lose their lives, from eating too much, and what they ought not to eat, than from abstinence or not eating enough. Except in military hospitals on battlefields—perhaps in some badly managed hospitals of other kinds, and among the extremely poor classes in our large cities—patients seldom ever die for want of enough to eat. Nevertheless, it is not to be denied that the sick often suffer, in the midst of the greatest abundance, on account of the ignorance of those who

have the care of them, in not knowing how to prepare their food properly, or just what kind of food to prepare, or how and when to give it; and sometimes, perhaps most frequently, on account of the negligence and indifference of nurses. But patients seldom die for want of enough to eat; while many, Fever patients especially, and those suffering from most acute diseases, are injured more from eating too much than too little. "Starve a Fever and feed a Cold," is an old saying, and there is wholesome truth in it—especially in the starving part.

When the friends of patients have asked me the usual questions I have named, as "What can he eat?" and the like, my usual reply has been: "What he wants to;" and, as a general thing, "When he wants to." "Never urge a patient to eat; do not crowd food upon him; he will know better than you when he needs food; his appetite will tell him. As to what he should eat—in that, too, he may know better than you. If he asks for any particular thing, if he craves it the chances are that it will not hurt him, but do him good. Use your judgment. The diet should, of course, be light, nourishing, and of easy digestion. If you know it would be injurious, of course, don't give it to him; if you have serious doubts, withhold it; otherwise give it to him if you can. But all the while recollect that the patient does not and will not need much food." This will apply to all cases of acute disease—to Fevers, Inflammations, Diarrhea, and the like. In chronic complaints, or diseases of long standing, where there is little or no Fever, the rule will be somewhat different. A light and abstemious diet may not be, in fact is not, so necessary. When persons are first taken down sick with Fever, or any other acute disease, they seldom want to eat any thing for the first few days, and it is very natural and proper that they should not. Food then, especially if it be strong or difficult of digestion, would do them absolute injury; and indeed any food might do more harm than good. In such cases, and at such times, food should never be urged upon a patient; he should never be persuaded or induced to take food against his wish. To do so is pernicious in the extreme; it is cruelty to the patient, though done out of kindness and extreme solicitude for his welfare, as ten chances to one it would only aggravate the disease. In cases of recent attacks of Fever, or acute Disease of the Bowels, one or two ounces of food, especially animal food, urged upon a patient, simply because it is thought he ought to eat something, is likely to do more harm than for him to go without a particle of food for three days. Indeed the abstinence of food for that time, or even longer in some forms of acute disease, might be the best possible way to save the patient's life! The best rule, in all cases of recent or acute diseases,

is *never to give the patient food unless he desires it;* and then to *let him have what he wants or prefers, if you know it can not hurt him.* To be able to comply fully with this latter part of the rule, will require some knowledge and judgment on the part of the nurse; but it is only a knowledge and judgment which all nurses, and all who have the care of the sick, should possess.

Nevertheless, it can not be denied that patients often suffer fo want of food, and that in the midst of plenty, from the ignorance of those whose duty it is to see to their wants, and from negligence and inattention to the manner of preparing their food, and to the proper times and manner of administering it. It requires judgment and skill often to know how to prepare suitable food and make it palatable, or even endurable to the patient; to know what sort of food, whether solid or liquid, vegetable or animal, is suitable to the condition of the patient; what hour of the day, whether morning, noon, or evening, a certain kind of food is most suitable; and when and how to give food, in what quantities, and in what manner, so as to be most suitable and acceptable to the patient. To know all this beforehand, as a matter of professional knowledge, applicable to all cases, of course, is impossible; but the ingenious and attentive nurse, with the ordinary knowledge which every nurse ought to have and may easily acquire, will soon find out—all she lacks of knowing—by experimenting, and by close attention to the condition, the tastes, the peculiarities, the likes and dislikes of her patient.

With a majority of weak patients, for instance, those who have been sick for a good while, it is often impossible or very difficult for them to take any kind of solid food in the morning; and if they should have nothing else offered them but solid food till noon, or afternoon, they still might be unable to take it, from exhaustion caused or kept up by continued fasting. Hence, an ignorant nurse, who saw the patient eat very well and very heartily for his dinner, the day before, of solid food, might think it all a whim if the same kind of food were declined by the patient next morning, and might undertake to "bring him to his appetite," by making him wait until he was willing to eat that! Weak patients are generally feverish at night, and consequently are weaker in the morning, have dry mouths, difficulty of swallowing, feeble digestion, and little or no appetite. They can not *eat* under such circumstances; but they may take a little liquid food or nourishment, as Beef Tea, warm Milk and Water, or Tea (sweetened), Chicken Broth, and the like, and gradually a little more. until by dinner time they may be able to take a good meal of something more solid and substantial. But an ignorant nurse could not comprehend why a weak patient could not as wel ake a certain

article of food as well one time in the day as another—as well in the morning before eleven o'clock as from two to seven o'clock in the evening; and a careless, indifferent nurse would not care to inquire, or go to the trouble of preparing the proper nourishment and giving it in the proper manner, if she knew what was necessary and the reason why it was necessary.

Again: A nurse may be ordered to give the patient say a teacupful of a certain article of food every three or four hours; but the patient can not bear it given in that way; his stomach rejects it. What, then, is to be done? The intelligent nurse will know at once, or at least will try some other plan. Give it in smaller quantities, and at shorter intervals—a table-spoonful every ten or fifteen minutes, or every half hour; and if this will not do, a tea-spoonful at a time, for a while at first, until the stomach becomes strengthened and able to bear more. The idea is, that the patient should take that quantity—a teacupful—every three or four hours; and if he can not take it all at once, give it in such quantities as he can bear, and make up the quantity within the time by short and frequent repetitions. There can be no doubt but patients are often lost through ignorance and the want of a little ingenuity and care on the part of nurses and persons in attendance, in regard to these seeming little, yet most important matters; and this is more often the case in private nursing in families than in public hospitals.

Punctuality, too, in giving food, is of the utmost importance. With very weak patients, life itself may hang upon a few minutes. A spoonful of nourishment, given at the right time, may so revive the patient as to turn the scale when almost balancing between life and death, as to save the patient's life; whereas, if it had been delayed ten or fifteen minutes longer, it might have been too late! Life often literally hangs upon a few minutes; and it may be as true of food as of medicine or a surgical operation, that a little, applied at the critical moment, or in time, may save the patient's life. Where patients are very weak, therefore, and can take but a little nourishment at a time, it is of the utmost importance that it be given with scrupulous selection and punctuality. "The consulting the hours when the patient can take food; the observation of the times, often varying, when he is most faint; the alternating the periods of taking food, in order to anticipate and prevent such times of faintness—all this and such like, which requires observation, ingenuity, care, and perseverance (and these really constitute the good nurse), might save more lives than any of us are aware of."

Another thing I would speak of, and only to condemn—and that is the habit of leaving a patient's food standing by the bedside or in

sight of the patient, in hopes that he will eat it by and by. Very often, when food is taken to a patient, and he can not or does not eat it—perhaps can not touch it—it is left standing by his side, so as to be ready for him, thinking he may eat it in the interval betwixt that and the next meal time. Nothing could be more improper. It is calculated to disgust a patient with food, and render him unable to take any at all. Always bring food to a patient at the right time, when he should eat it or is ready to eat it, promptly and punctually; but whether he eats part of it or none of it, never leave it standing, with the idea that he may always have something by him to eat, unless you wish to disgust him with food of every kind.

If it be found, as often it will be, that a patient can not take food at the regular or usual hours, you may very likely ascertain at what times he could take food, by simply asking him such questions as, "Are there not times when you feel that you could eat a little? Some hour in the twenty-four, either day or night, when you feel an appetite, or when you could take a little food, if you had it?" Many a patient's life has been saved, just in this way, by the physician, or the careful nurse, appealing to the patient himself to fix the time for taking food. But it is not always that patients themselves can tell this, especially if they are very feeble, and it is the duty of the nurse to watch and find out by constantly trying expedients.

It is believed to be a good rule not to talk much about eating, and about various and different articles of food, in the patient's presence or hearing. It is calculated to distract or divide his mind as to articles of diet, to render him capricious, and perhaps disgust him with all food. And it is especially a bad habit to cook food in the patient's room—or for the nurse or others to eat in the room, or to exhibit articles of food to the patient between meals—and particularly raw or uncooked food. Patients will often become disgusted with food of all kinds just from seeing others eating in their presence; and also from being too near the cooking operations, where they can smell the flavors of the kitchen.

If a patient is able to take his food without assistance, that is, able to feed himself, it is always best to let him do so, and leave him to enjoy his meal alone as much as possible; and if he has to be fed, it should be done without talking to him or allowing him to talk much while eating—especially about food. Talking by a patient immediately before the time of eating, especially if on an interesting subject, or matter of business in which the patient is interested, will often destroy his appetite or ability to take food. So, too, the good effects of food may be diminished or entirely destroyed, by causing or permitting the patient to talk upon some exciting subject too soon after

eating. All these may seem to be little things, trifling and of no consequence; but they are, nevertheless, often of the greatest importance. It is the careful attention to the "little things," as they are generally regarded, that constitute the great secret of good Nursing.

**About the Kinds of Food.** — It can hardly be expected that detailed and specific directions in regard to the particular kinds and articles of food, for the sick, and the proper or exact way of preparing them, to meet every case and condition, can be given in a work like this, or indeed laid down in a book at all. Such a thing is not possible; neither is it necessary nor desirable. The most we aim at is to give some intelligent hints, and to lay down some general rules and observations, that may be useful by being easily understood and applied by the common reader, and by persons of ordinary intelligence, who may have the care of the sick.

As to what is proper diet for the sick, there are a few plain, simple, general rules that should be observed. They cover the whole ground, and may be understood by all—the common, inexperienced reader, as well as the intelligent, experienced nurse; the farmer's wife, as well as the learned physician.

The first and most important and most general rule is that the diet should be light; it should be harmless, unexciting, and easy of digestion. And it must be more or less light, weak, and easily digested, according as the patient is more or less feeble, and according also to the character of the disease. A patient, for instance, with Diarrhea, Dysentery, or Inflammation of the Stomach, would require much lighter food, and given with greater caution, than one suffering with Consumption, though the Consumptive patient might be much the weaker and more feeble of the two; while a patient suffering with Fever, might be better without any food, or a very little, for a day or two.

In the second place, food for the sick should be nourishing. Not strong, not hearty, nor gross, nor exciting, but nourishing and strengthening. This is reasonable. As a general thing, sick persons at best can take but little food, and hence the greater reason that what they do take should be of a character to afford as much nourishment as possible. Yet it would not do to give the most nourishing and strengthening food, that is, such as would be the most nourishing to a well person, for that would conflict with the first rule, that the food should be light. The patient's stomach could not digest it; or if it could, it would likely do him more harm than good. A pound of Beef, well cooked, would be more substantial and nourishing than as much boiled Milk; yet the former might kill the patient, while the latter might save his life.

As a general thing, too, the diet of the sick should be mainly of a vegetable character; not by any means exclusively, but mainly; and this to be governed by circumstances, and the condition of the patient. Meat Broths, Soups with more or less of the juices of meat in them, and for very weak patients, Beef Tea, are often most excellent, being both nourishing and palatable, and at the same time sufficiently digestible.

The liquid form, or semi-liquid, will be found also to be the best form, as a general thing, in which to administer food to the sick. A majority of patients prefer Soups, Broths, and Liquid Food, while also in a majority of cases this is the best form

And here I would remark that Milk, in its various forms and in connection with the various preparations into which it enters as an ingredient, is probably the most important and most useful single article of food there is for the sick. Milk is the diet of babies, the diet during infancy; when the youth and the strong adult become sick, smitten with disease and prostrated on a bed of pain, they become as little children; the system is enfeebled, the stomach and digestive organs are weak and inactive, and consequently their food, while in such condition, must correspond to their ability to digest and assimilate it, and to the actual requirements of the physical system for sustenance; it must, as compared with the healthy man's food, be weak, light, unexciting, and easily digested and assimilated. Hence Milk is a most important article for the sick. It can be used in so many ways, and can be made an important ingredient in so many preparations for the sick, and is, withal, so nourishing and so well adapted to the tastes, wants and capabilities of almost all patients, young or old, that it may well rank as the leading article in the diet of the sick.

In many forms of disease, and especially in Bowel Complaints, there is no better diet than boiled Milk and Flour—"Thickened Milk," as it is generally called in the country; Milk boiled and thickened, by stirring in while boiling sufficient Wheat Flour to make a kind of thin Mush. It is very palatable, and agrees with almost all stomachs. It is often used as an article of food for well persons. A little Butter may be added, if taken warm, or Sugar, or both, as may be preferred. And if the patient is very weak, instead of using pure Milk, it should be weakened by adding a portion of Water, more or less, according to the strength of the patient.

Gruel (which is a thinner article than the above) may be made with Milk, or equal parts of Milk and Water, and may be made by using either Wheat Flour or Corn-meal. Gruel is frequently made of Corn-meal and Water, by stirring in a little Meal while the Water is boiling. It requires but little Meal, as it should be thin enough to be

drank by the patient. A little Salt should be added to season it. When properly made, Gruel is a very agreeable and pleasant diet. It is light, cooling, unexciting, easily digested, and nutritious. I always prefer it made of Corn-meal, and with not a greater proportion of Milk than one-half; that is, equal quantities of Milk and Water. A less proportion of Milk will often do.

A strictly Milk diet is often the best in most Fevers and I consider it essential in Typhoid Fever. When Milk is taken into the stomach it is coagulated by the renning into masses, whose size depends upon the amount of Milk taken at a time; of course, one large mass is more difficult of digestion than a number of smaller ones, because there is more surface presented to the action of the gastric juice in the case of the smaller masses. This explains why the Milk should be taken slowly and in small quantities. Milk alone coagulates in rather solid masses, but if a tablespoonful of Lime-water is added to a glass of Milk, the mass is not so firm on coagulating and is then more readily penetrated by the gastric juice.

While on the subject of Gruels, let me say that one of the best things in cases of Dysentery, or Flux, and in Bowel Complaints generally, is Flour and Water: that is, Flour stirred into Cold Water until it becomes a thick Gruel, about the consistency of thick Cream, and then let the patient take as much as a teacupful three or four times a day, or more than that quantity if he can take it. It acts both as Food and Medicine. For Dysentery, where the Mucous Membrane of the Bowels is inflamed, sore, and tender, this mixture of Raw Flour and Cold Water is a most admirable remedy. It acts upon the inner surface of the bowels as Raw Flour does when applied to the abraded surface of Burns; while the nutritious portion of it is taken up and distributed through the system, and acts as nourishment. It may be given in all cases where there is more or less looseness of the Bowels.

There is some nourishment, perhaps, in a cup of Tea; at any rate some people, especially the English and the New Englanders, seem to think so. When they are sick, they cannot get along without their cup of Tea. There is more nourishment in it if well sweetened, and still more if a good proportion of rich Milk, or of good sweet Cream, is added. There is a large amount of nutriment in Sugar, and where patients like Sugar, or sweetening in their food or drinks, it is generally well to let them have it. And it is always well to use a liberal portion of Milk in their Tea, Coffee, and other preparations of diet, where it can be done. But, as a general thing, the Milk should be boiled before using. It is not enough to add it to boiling hot Tea or Coffee; the Milk itself should first be brought to a boil. Especially should this be done in all cases of Fever patients, and where everything calculated to excite Feverish symptoms in the patient should be avoided.

With Butter Milk, the case is different. I cannot agree with those who condemn the use of Butter Milk, as being injurious to the sick. It is not

so. In many cases it is preferable to Sweet Milk, especially when the patient craves it. You need not, as a general thing, be afraid to let a patient have Butter Milk, if he desires it, asks for it, or craves it—unless some special or peculiar condition of his system forbids it, let him have it. In nine cases out of ten, it will not only not hurt him, but will do him good. Butter Milk especially is, in most cases, a healthy, cooling, and refreshing drink. And what is better, what more delicious and palatable, than a dish of nice, cool, thick, or "Clabber" Milk? How often, after suffering with burning, wasting Fevers, and beginning to grow better, have patients craved a drink of Butter Milk or Clabber Milk And who has ever known of a case where the gratification of such desire has proved injurious? I might ask, indeed, who has ever known a case where it did not prove beneficial? Of course, moderation and judgment must be used; the patient must not be allowed to take too much, to overload his stomach, and thereby induce Feverish or other injurious symptoms—a thing that may be done with the most innocent article of drink or diet. It is not true, I affirm, that Butter Milk is injurious. Those who say it is, do not know what they are talking about. I do not say it is the most healthful thing in the world; nor that it is more healthy than fresh Milk, though in many cases, because the patient craves it, it is more valuable. Not as an article of diet, nor on account of its nutritious qualities, but simply as a drink, as a cooling, innocent and refreshing beverage, answering both as food and drink, where such an article is indicated. It is never to be given, however, unless desired by the patient. I have felt its beneficial effects in my own case often, and have witnessed it in others in hundreds of instances, and I do not recollect of a single instance where its use had an injurious effect. Therefore, I say, if patients desire a little Butter Milk occasionally, as a drink, whether it be Clabber Milk or Butter Milk, let them have it, if you can. Mulled Butter Milk, that is boiled, is also a good thing if palatable to the patient. It may be taken warm or cold; but is usually taken warm. It may also be sweetened. It is an article good for both sick and well. Sour or turned Milk should, as a rule, not be given to a sick person, as it is not wholesome, being "spoiled" Milk.

As I have already said, it is impossible to lay down in a book strict rules of diet for the sick, as to what particular articles are to be used. The physician cannot always tell what is best; neither can the best nurse The patient's own "fancies" and tastes will often be the best guide. Always keep in view the general rules and ideas, as to the character of the food for the sick; that it should be mild, light—not animal—mainly vegetable or farinaceous, unexciting, nutritious, and easily digested, and then trust to the guidance of the patient. Consult his tastes, his fancies and desires, and you will hardly go amiss.

I have also said that, as a general thing, or in a majority of cases, liquid food is preferable. By that, I mean that patients will generally

themselves, prefer their food in that form, and for the reason, undoubtedly, that it is better suited to the wants of Nature, to the condition of the patient—being easier swallowed, more palatable to the taste, and easier assimilated or digested. Hence Soups, Broths, and nutritious Teas, will constitute a large proportion of the proper diet for the sick. Chicken Soup is one of the most common, as well as most useful and beneficial of the various kinds of Soups. Of course, it is not necessary to give any directions here as to how it should be made. Every nurse every cook, and every good housewife in the country, knows how to make Chicken Soup. All the rule necessary to observe, is to be careful and not make it too strong, too rich; but to gauge its strength according to the strength or condition of the patient. Remember, that in all recent cases of sickness, and in acute forms of disease, the great danger on the part of nurses and friends of the patient is, that they will feed too much; that they will do more harm by over-dieting the patient than by under-dieting; that they will give too strong or too much food, or give it too often, rather than too weak, too little, or not often enough. In all acute diseases, therefore, and recent attacks, it is always better to have the food weak rather than too strong; and better to starve the patient a little, than to feed him too often or too much. Beef, and other Meat Soups, should not be too strong and rich; and you should never urge the patient to eat more than he wants.

Certain Vegetable or Farinaceous Soups are well adapted to the wants of the invalid, or Soups partly vegetable and partly of meats, as Chicken Broth with boiled Rice. This makes an excellent diet in all ordinary cases. Barley is also a good article to put into Soups. It is mild, easily digested, and very nutritious. Some persons, whenever they get sick, want Onion Soup, or some sort of Soup with Onions in it. Where patients like the flavor of Onions, and prefer to have them, it is always well to accommodate them. Onions possess strong medicinal properties, and though the substance is difficult of digestion, the flavor of the Onion can do no harm, and may do good. It is a healthy seasoning for Soups, for the sick or the well. (The reader is referred to the numerous valuable "RECIPES FOR PREPARING FOOD FOR THE SICK," which will be found following this treatise.)

**On Beds and Bedding.**—There is probably more injury done to the sick—especially those who are confined most of the time to their beds—through the ignorance of nurses in regard to the bed, than in perhaps any other one thing. What sort of beds are those—especially in the country, and in private houses generally—on which the sick are confined? Look at the number of mattresses! Did you ever count them, and think of the matter? Two or three thick, heavy mattresses, possibly, and sometimes more! And these mattresses

remain, just as they were at first, with an occasional "shaking up" of the top one, perhaps, from the time the patient is first taken down, until he quits the sick room.

The careful and thoughtful nurse is very particular about *airing the sheets*, every day. But are the mattresses ever aired? ever changed? Of course not. This is a matter often not thought of.

A mattress will soon become saturated with the unhealthy, poisonous emanations from the patient's body; from this arises a dampness, a moisture, either cold or warm, as the case may be, which returns upon the patient, to be inhaled and absorbed into the system; and this unhealthy process, perhaps, is kept up during the whole course of his sickness.

It is not enough, therefore, to "air the sheets" well. A patient should not be allowed to lie on the same mattress more than forty-eight hours at a time; twenty-four hours is better. It should then be exchanged for a fresh, clean, well-aired one; while it should be subjected to a thorough airing and sunning; not slipped *underneath* another, on the same bed, as is sometimes done! I have already said something about the criminal habit of leaving the chamber *under the bed*, with its contents in it, perhaps uncovered, to saturate the under mattress with its poisonous effluvia and exhalations. Suppose there are two mattresses on the bed, with the chamber beneath to saturate the under one, and the patient, with the exhalations from his body (which are passing off every hour), to saturate the upper one—how long do you suppose a patient can thus remain, with mattresses unchanged, with safety? No wonder some patients recover slowly, and often have "backsets." It is more important, vastly more important, that the mattresses, all of them, be frequently changed and aired, than that the sheets be; and for the reason that they will catch and contain vastly more poisonous effluvia and dampness than sheets will, and will give it off again, to the great injury of the patient. The exhalations from the patient's body are constantly passing off, by insensible perspiration, and often by sensible, and gradually and constantly passing into his bed; until, if the same mattress is used for several weeks, without change or airing, it may become a reservoir of pestilence, and endanger the very life of the patient—notwithstanding he may have clean, well-aired sheets every day! Nurses, and all who have charge of the sick, therefore, can not be too careful about this matter. Change the mattresses often, and let them be well and thoroughly aired, sunned, if possible, and dried; and if necessary—if any filth has got into them—let them be opened, picked to pieces, and dried, before using again.

All beds, whether for sick or well, should be so arranged and

situated, that the air can pass under them freely. There should, of course, be no valance or curtain around them. As pure air as it is possible to get in a sick room should be allowed to pass under and reach the lower mattress, all the time; while the upper one should be exchanged and aired at least every other day, when the bed is occupied by the sick. This is especially necessary and important in all cases of Fevers and low debilitating diseases, and diseases of the Lungs and Bowels. One mattress is all that is necessary to a bed at one time. A good, firm hair, or pneumatic mattress is preferable to all other kinds.

It is thought by many that a wide or double bed is preferable for a sick person, as it gives the patient the advantage of changing occasionally from one side to the other. It is far better, however, that the patient, instead of being changed from one side of a wide bed to the other, be removed into an entirely different bed. Hence it is better to have narrow, or single beds for patients, and change them frequently from one to another, and in that way secure an entirely fresh, well-aired, clean, and dry mattress, every time the change is made.

As to the arrangement or location of the bed, I would say that a patient's bed should never be placed *in the corner* of the room (a very common custom, especially in the country); neither should the *side* of the bed be placed against the wall of the room. In the first place, a bed in the corner can never be well aired or ventilated; and the same objection holds good, to some extent, against the custom of placing the side of the bed against the wall. But, in the second place, it is often very necessary and important that the attendants on the sick be able to approach readily *both sides of the bed*, which can not be done if the bed is in a corner, or one side against the wall. The better way is to place the bed well out in the room, away from any wall; or if not this, then with one end—the head-end preferable—to the wall. This will enable the nurse to approach readily either side of the bed, and will give the patient and the bed the benefit of a better ventilation and some chance to get a little pure air, if there is any in the room.

Another important thing is the fact that the patient's bed should be in as light a part of the room as possible, without being directly in a draught, or in the sun. Instead of this, however, the bed is very generally stuck away in a corner, and in the darkest part of the room! Light, as I have already said, is essential to health, and is essential, also, to the speedy recovery of the sick. Let the patient's bed, therefore, always be placed in a part of the room where there is a full share of the light of day.

It may be well to say a word in regard to the hight of beds, for the sick; and what I say will apply equally to beds for the well. It is very common, in the country, to have high bedsteads, and then on

top of these two or three thick mattresses or straw-ticks, and on top of all a thick feather-bed. This brings the patient *too near the ceiling*. Beds should be moderately high; not exceeding, however, eighteen inches or two feet to the top of the mattress. If the patient is too high, or very high, especially if the ceiling is low, he will be above the current of fresh air, and in that which is heated and impure. Care should be had also not to have the bed too low, or the patient will be in the cold, damp, and equally unhealthy stratum of air and effluvia which settles near the floor of the room. The best criterion to go by is to have the position of the patient as near as possible on a level with the throat of the chimney or upper part of the mouth of the fireplace of the room, as he will then be in the current of the freshest and best air in the room. The convenience of the patient in getting in and out of bed should also be taken into account. If the bed is very high, it will be the more difficult for him to get out and in, and will worry him more than should be the case, in performing such exercise. I merely hint at this matter, and leave it to the good judgment of those who have the care of the sick, which will generally lead them right, in matters of this kind, if they will but obey it. These may seem to be but small and trifling matters to those who have not given the subject much attention, nor inquired into the reason and philosophy of such little things; but they are, nevertheless, of great importance to the sick, and really go to make up the essentials of good Nursing.

The matter of bed-clothes, blankets, covering, etc., is one of the greatest importance to the sick. It is very common, for instance, to place patients on thick woolen blankets, because they are soft and warm. This may be well enough in cold weather, and for patients that have not been long confined to the bed. But if the patient is "bedridden," as it is termed, that is, has been long confined to the bed, and there is a likelihood of Bed Sores, or, in reality, the patient has Bed Sores, then a blanket should never be placed under him, nor any thing of the nature of a blanket. A blanket, or thick cotton comfort, will accumulate and retain the moisture which escapes from the patient's body, and will thus "act like a poultice," breeding Bed Sores, and making them worse where they exist. For patients with Bed Sores, a nice, fresh, loose straw mattress, in a linen tick, with a sheet over it, will serve a good purpose. But by all means keep thick, heating blankets and comforts from under patients with Bed Sores. An India-rubber bed, filled with water, has lately been introduced, and is the best bed possible for bed-ridden patients; or the pneumatic bed, made of rubber, filled with air.

Thick cotton comforts and stuffed counterpanes and quilts are also bad for covering. They are impervious to the circulation of the air,

and the breath and exhalations of the patient. They will gather and retain the moist exhalations and dampness from the patient, and thus become extremely unhealthy and injurious. Besides, they are too heavy for weak patients. There is nothing so good for a covering to sick persons as a clean, light, thin woolen blanket—one that will allow the moisture and exhalations from the patient to pass through it. If this, with a sheet, is not sufficient, add another blanket, or a thin porous spread. But be careful about piling on thick, impervious, air-tight coverings. It is better to leave the patient too cool, than to oppress him with such coverings as the latter.

There is another very common error—I may say, evil—which I would guard all against—and that is, placing or propping up the patient's head too high, by piling the pillows on top of each other. The best criterion, perhaps, is to consult the patient's ease and comfort in this matter, where the patient is intelligent and in a condition to decide for himself. But this can not always be relied on. There is often much injury done to the sick by placing the pillows too high, thus throwing the head up and forward on the breast, so as to greatly interfere with the breathing. Always endeavor to so arrange the head of your patient that he may lie easy, and at the same time breathe freely; and, by all means, be careful and do not prop up the head too high.

**Cleanliness.**—Perhaps enough has already been said as to Cleanliness, while on the subject of "Health of Houses and Premises;" but it is a matter of so much importance, both as to health and as to proper nursing, and the recovery of the sick, that it can not be amiss to again call attention to the subject. Cleanliness of the premises, the sick room, the house, and all about and around the house, is absolutely necessary, if you wish to preserve good health, or wish to see your patients recover, as they should and as they might, with proper attention in regard to the matter. But besides this, *personal cleanliness*—the cleanliness of your patient—is of the very greatest importance. Not only should the room, the bed, and all the approaches to the room and to the house, be kept perfectly clean and pure—as much so, at least, as possible—but the patient himself must be kept clean. By this, I mean that the body, the skin, and the whole person, must be kept well cleansed, by frequent and thorough Ablutions or Bathings, so as to keep the pores open and the skin in as healthy a condition as possible You will find in another part of this book, under the head of "Bathing," some useful and practical remarks upon this subject. Any one who has witnessed the improvement in a convalescent, or any patient whose condition will admit of a warm or tepid Sponge Bath or washing, after undergoing this healthful operation—the revival, the changed appear-

ance, and the expressions of feeling better, which almost invariably follow—will readily admit the beneficial effects of perfect personal cleanliness and frequent bathings.

Patients should, therefore, be bathed, or washed, all over, once or twice a week at least. Warm or Tepid Water should be used, as a general thing—especially for weak patients—and, if possible, soft or Rain Water. It is also well to dissolve a little Saleratus in the Water, or add a little Lye, so as to make it a little alkaline, which serves the better to remove the gummy and oily substance which exudes from the pores of the skin. It is also well to use Soap freely; it will do no harm. After thoroughly bathing and washing the patient, dry and rub the surface well with a dry towel. This latter operation is very important. It seems to produce a reaction, to invite the blood to the surface, and to promote a free and equal circulation. Where patients are able to bear it—and especially in cases of Fever—an occasional Cold Bath, or washing with cool water, followed with severe friction, or rubbing with a dry towel, will be found both agreeable and beneficial. To prevent a patient, who is very feeble, from taking cold, the best plan is to lift but a small portion of the bed-clothes and bathe but a small surface of the body and limbs, and then rub dry with the towel; proceeding in this way until the person is thoroughly bathed. Rubbing the patient with weak Alcohol each day is both beneficial and pleasing.

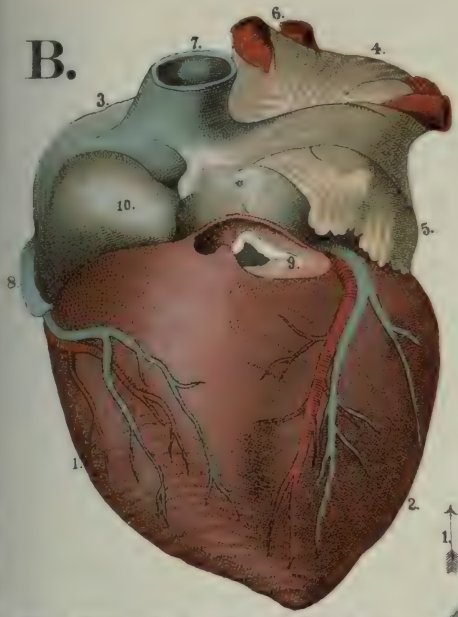
Remember, therefore—and we would impress it as our last words on the subject—that Cleanliness, general and personal, is one of the first essentials in Good Nursing, as well as an essential prerequisite to Good Health.

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## RECIPES FOR PREPARING FOOD FOR THE SICK.

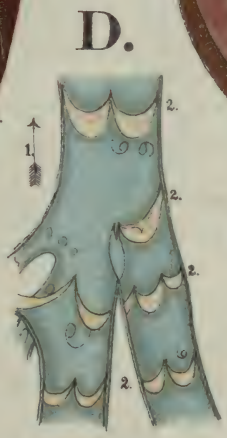
**Beef Tea.**—For very weak patients, when even weak Meat Broths are thought to be too strong, what is called Beef Tea is often made use of. This article is greatly overrated, as an article of diet or sustenance, as it can possess but very little nutriment, and the patient must be very feeble indeed that can not bear something stronger. Nevertheless, there are cases where its employment may be the best, and all that can be permitted. It may be called the weakest possible form of Meat Broth, and is made as follows: Take, say ½ pound of lean fresh Beef, cut in thin slices, put into a small vessel or bowl, pour over 1 pint of Boiling Water, and let stand half an hour by the fire, to steep, but not to boil; then pour off, squeeze out the juice from the Meat a little, season with a little Salt, and give this "tea," or liquid, to the patient, according to directions. It should be taken moderately

# THE CIRCULATION OF THE BLOOD.










## B—External muscles of the heart, front view.

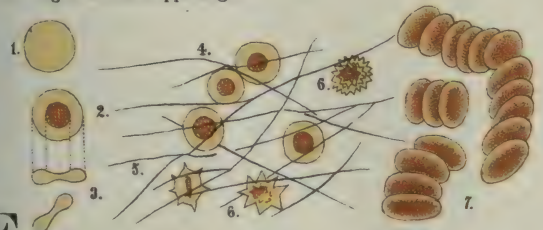
1. The pectinate (ridge-shaped) muscles of the right ventricle.
2. The pectinate (ridge-shaped) muscles of the left ventricle.
3. The pectinate (ridge-shaped) muscles of the right auricle.
4. The pectinate (ridge-shaped) muscles of the left auricle.
5. Left auricular appendage.
6. Pulmonary veins.
7. Superior vena cava.
8. Inferior vena cava.
9. Pulmonary artery (with semilunar valve)
10. Right auricular appendage.

## C—Longitudinal section through the heart.

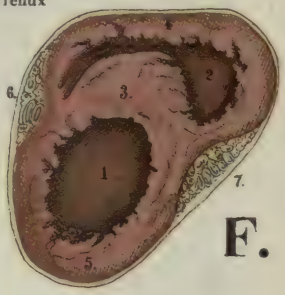
1. Left ventricle exposed, showing internal papillary muscles
2. The bicuspal or mitral valve.
3. Left auricle exposed.
4. Left auricular appendage from within.
5. Orifices of the pulmonary veins.

## D—Vein from within.

1. Direction of the blood.
2. Semilunar valves, preventing the reflux of the blood.




E.




F.

## E—Blood corpuscles, magnified.

1. Blood corpuscles completely circular, when treated with water.
2. Blood corpuscles, seen on the surface.
3. Blood corpuscles, seen edgeways.
4–7. Coagulated blood.
4. Blood corpuscles of general outline.
5. Fibrin, forming fibrous layers during the process of coagulation.
6. Dried-up blood corpuscles.
7. Blood discs, arranged like rouleaus of coins.

## F—Transverse Section through the heart.

1. Left ventricle.
2. Right ventricle.
3. Septum.
4. Outer wall of right ventricle.
5. Outer wall of left ventricle.
6. Coronary vessels and fatty matter of the anterior ventricular groove.
7. Coronary vessels and fatty matter of the posterior ventricular groove.

warm, and generally in small quantities, as a patient who cannot take anything stronger than Beef Tea will not be able to take much, even of that, at a time. Small quantities should be made and used fresh, as it rapidly spoils on standing.

**Chicken Panada.**—Boil a young grown Chicken until nearly done, in about 2 quarts of Water; then take out, remove the skin from the breast, and when cool enough cut off the breast, or white meat; cut into small pieces, put into a mortar, or other strong vessel, and with a pestle, or piece of hard wood properly prepared, pound and mash to a paste, adding a little of the broth in which it was boiled. Season properly with Salt and a very little Lemon Peel. Then boil to the consistency you wish, by adding sufficiently of Water—boiling slowly for a few minutes. It should be about the consistency of thin Gruel, or thin enough to drink or eat with a spoon. When it has been made into the paste, if there is too much for once, or to be used in one day, it can be put away in a jar, or suitable vessel, to be used as wanted. When made into Panada, a little toasted Crum Bread can be added, if the patient can take it, or it may be improved by adding any light farinaceous article, as Rice, Barley, unbolted Flour, and the like, properly cooked. This is a very nutritious article, containing a great amount of nourishment in a small compass.

**Chicken Broth.**—This may be made of any young fowl, which may afterward be served up for the family, by simply boiling it awhile before preparing it for the table, and saving the Broth. But the best way to make Chicken Broth, is to take a rather old Chicken, and boil down to rags or shreds, seasoning with Salt; keep sufficiently diluted, or thin, by adding Water, and when done, skim and strain. It can be placed away in a suitable vessel (which should not be metal), to be used from daily in such quantities as the patient may require, by taking a little and warming it, and, if need be, thinning it, and, perhaps, adding other ingredients, as toasted Bread, boiled Rice, and the like.

**Mutton Broth.**—To 1 pound of lean Mutton (cut off all the fat) use 1 quart of Water, and a little Salt, with a few crusts of Bread; boil slowly for a couple of hours; then skim off the oily matter carefully before using.

**Beef Extract.**—This is a very nutritious article, and might be made very useful. It is highly recommended by Prof. Liebig. Take a pound or two of good, juicy fresh Beef, after all the skin and fat have been cut away, chop up into fine bits, like Sausage Meat; put into a suitable vessel (iron or earthen); mix with it thoroughly about an equal quantity of Water—that is, to 1 pound of Meat, 1 pint of Water; place on the stove, or some other place near the fire, where it will heat *very slowly*, stirring occasionally. It should thus stand two

or three hours before it is allowed to come to the boiling point, or even to a simmer; after that, it should be gently boiled for about fifteen minutes, adding first a little more Water, say half as much as was at first added. Add also, before boiling, sufficient Salt to season it properly. After having thus boiled, let cool sufficiently, then pour the whole off and strain through a strong linen cloth, and squeeze out well. Let stand in a pan or dish, and skim off any particles of fat and other substances that may gather at the top. After it has stood until the sediment has settled at the bottom, and it has been well skimmed, pour off gently and bottle or put away in a tight vessel. Take a little of this any time, add sufficient Water, warm up, and thus make Soup, Broth, or, by adding still more Water, Beef Tea. This is a very important preparation. It is, however, like most meat preparations, best used fresh, as they are all readily decomposed.

**Calf's Feet Broth.**—Take two Calf's Feet, well dressed, split open and cut off all the fat, add about ½ pound of lean Meat (Veal or Beef), boil in plenty of Water, say 3 or 4 quarts, slowly, and for several hours, down to about 3 pints. In the mean time, add to it a piece of Wheat Bread Crust, the size of your hand, sufficient Salt, and, if you like, half of a Lemon Peel. When boiled sufficient—till the feet and every thing have become perfectly tender, and boiled to a jelly—let stand, skim, and strain, when it is ready for use. If too strong or thick, it can be reduced by adding Water.

**To Make Gruels.**—The most common Gruel is made of Corn-meal and Water, with a little Salt Take, say about 2 table-spoonfuls of sifted Meal, stir it into about 1 teacupful of cold Water, beating or stirring it, to mix it well; then put it into a sauce-pan, or suitable utensil; add 1 or 1½ pints of Water, and boil slowly for half an hour. It may be seasoned with Salt alone; or a little Butter and Sugar, or either, may be added; also, a little Milk, if desired. The simple Corn-meal Gruel, however, will generally be preferred.

**Oat-meal Gruel.**—Made the same as of Corn-meal; or stir 1 table-spoonful of fine Oat-meal into 1 pint of Water, and boil ten or fifteen minutes, stirring all the while it is boiling; season to suit.

**Barley Gruel.**—Boil 4 ounces of Pearl Barley, or about 1 teacupful, in 3 quarts of Water, down to 1 quart; strain, and return into the saucepan or boiler; grate into it a little Cinnamon, if you like, and sweeten; add from ½ to ¾ pint of fresh Milk; warm up, and use as wanted.

**Flour Caudle.**—This is a very nice article, and is made by stirring 1 table-spoonful of Flour, smoothly and carefully, into about 1 gill of cold Water; mix it thoroughly, so there are no lumps in it; then set on the fire a saucepan, with about 1 pint of fresh or sweet Milk, and when it boils, stir in gradually and slowly the Flour and Water; add

sufficient Sugar to sweeten, and simmer and stir about fifteen minutes. This is a very delicate, palatable, and nourishing article of diet—good for weak patients and children.

**Raisin Gruel.**—In making any kind of Gruel, it is a very good plan sometimes to give it the strength and flavor of Raisins, which may be done as follows: Boil say ½ pound of Raisins, for half an hour, in 1 quart of Milk and Water, equal parts; then strain and squeeze out, return the liquid into the saucepan or vessel, and stir in and boil for a few minutes the article with which you are to thicken the Gruel—Oat-meal, Corn-meal, or Flour—as the case may be. The Raisins make it sufficiently sweet. No Salt is required; but a little Cinnamon, or the like, may be added. Where patients are fond of Eggs, or do not object to them, as some do, the yelk of an Egg may be beaten well with a little Milk, and stirred into any Gruel a few minutes before it is done boiling. This renders the article much more nutritious, and, where the patient likes it and can bear it, is a very good addition.

**Boiled Flour.**—For young children, who are suffering with Diarrhea or Looseness of the Bowels, no better food or more useful remedy can be given than is made as follows: Tie securely, in coarse muslin, 2 teacupfuls of Wheat Flour, and boil for eight or ten hours; take off the cloth and crust formed over the Flour, grate the inner portion as needed into boiling Milk, to the consistency of thin starch, and sweeten with White Sugar.

**Bread Panada.**—Take a slice of well toasted Bread, boil gently in 1 pint of Water, for a few minutes, with a bit of Cinnamon; then grate in a little Nutmeg, add a very little Butter (about 2 tablespoonfuls of Brandy, Rum, or good Whisky, to strengthen, the patient having no tendencies to Fever), and Sugar enough to make agreeable. Wine may be used instead of the Brandy, using double the quantity. This is a very nice, delicious article, and may be taken freely. Lemon Peel may be added to flavor, if desired.

**Simple Bread Soup.**—Take the upper crust of a loaf of Wheat Bread (the dryer and harder the better), cut or break up into small pieces; put into a saucepan, with 1 quart of Water, a piece of Butter the size of a walnut; boil slowly for fifteen or twenty minutes, stirring occasionally, or beating till the Bread is thoroughly mixed, and season with a little Salt, and serve up.

**Bread Jelly.**—Cut the soft part of a small loaf of Bread into thin slices, and toast them to a pale brown on both sides; then boil gently in 1 quart of Water, till the whole becomes a jelly (which may be known by putting a little in a spoon to cool); add a bit of Lemon Peel; strain and sweeten. A little Wine may be added, if desired,

when the patient has no Fever. A very delicate, palatable, and nutritious article for sick folks.

**Nutritious Jelly.**—Take about 2 ounces, each, of Rice, Pearl Barley, and Sago, boil slowly in 3 quarts of Water, down to about 1 quart; take of this a teacupful (more or less, as the case may be), in a little Milk, warmed, morning, noon, and night. An excellent diet.

**Irish Moss Jelly.**—The Moss should have the bitter taste extracted, by being allowed to stand in Cold Water for a few minutes, and then should be washed through two waters. To 1 ounce of Moss use 2 quarts of Water and a little Cinnamon Bark; boil to a thick jelly, and then strain and season to the taste with good Wine and White Sugar; if for use soon, Lemon Juice should be used in place of the Wine. Very delicate and nice.

**Arrow Root Blanc Mange.**—Take 1 teacupful of Arrow Root to 1 pint of Milk; boil the Milk first with 12 Sweet and 6 Bitter Almonds, properly mashed; strain and sweeten with Loaf Sugar; put the Arrow Root in a vessel, and pour on to it the Milk, boiling hot, gently and by degrees, stirring it the while. Then pour the whole back into the vessel in which the Milk was boiled, and boil for a few minutes, still stirring. If you wish to mold it, with a cup, or mold, dip the vessel in which you wish to shape it into Cold Water, then pour in the Arrow Root, and when cold it will come out easily. When prepared for the sick, this is not necessary. Turn the whole into a vessel and set away to cool. It is a light, innocent, and moderately nutritious diet.

**Wine Whey.**—Take 1 quart of new Milk, half as much Water, put them in a saucepan or suitable vessel, place over a fire, and when they begin to boil add ½ pint of Sour Wine; boil slowly about fifteen minutes, during which time, as the Curd or Cheese part collects, take it off with a spoon, and when the whole of the Curd is thus removed, pour the Whey into a vessel, and it is ready for use. Good for very weak patients, and often recommended by physicians. Cider Vinegar may be used instead of the Wine, taking about half as much; and instead of skimming off the Curd, the whole, after boiling fifteen or twenty minutes, can be strained, thus separating the Curd from the Whey. Sweeten to taste, and flavor with Lemon Peel, Cinnamon, and the like, as may be preferred.

**Mustard Whey.**—Boil about 2 ounces of ground Mustard in 1 quart of new Milk and 1 pint of Water, for fifteen or twenty minutes, or until the Curd becomes separated from the Whey; then strain, and preserve the liquid. This is a very pleasant and useful stimulating Whey—as pleasant a form as Mustard can be used in, and in many cases is preferable to Wine Whey. A teacupful or so, sweetened with

Sugar, should be taken three or four times a day. Good in all cases of low Fevers, as in Typhoid, as a stimulating diaphoretic, and whenever a mild and agreeable stimulant is wanted.

**Alum Whey.**—Boil about an even table-spoonful of powdered Alum in 1 pint of fresh Milk, till curdled; then strain and squeeze out the Whey. This is an astringent Whey, and may be used with advantage in all cases where an astringent is required, as in Diarrhea, and especially in cases of Uterine and other Hemorrhages, and in Diabetes. Dose: half a teacupful three or four times a day, or more, if the stomach will bear it.

**To Mull Port Wine.**—Boil a little Allspice in 1 pint of Water, to get the proper flavor; then add an equal quantity of Port Wine, a little Sugar, and boil together a few minutes, and serve with Toast, or any way preferred.

**To Mull Catawba, or Sour Wine.**—Take 1 pint of Sour Wine, ½ pint of Water, and a table-spoonful of Allspice; boil together gently for a few minutes; in the mean time add the yelk of 2 Eggs, well beat up, while boiling, with a little Sugar, and, if desired, a little Cinnamon and Lemon Peel. This is a very agreeable and quite strengthening article.

**Refreshing Drink in Fevers.**—Take 4 ounces of Tamarinds, 4 ounces of Raisins, and boil in about 3 quarts of Water, slowly, for fifteen or twenty minutes, or till the water is reduced near one-fourth; then strain, while hot, in a vessel, with a little Lemon Peel in it. When cool, use as a drink. Sweeten a little if desired. Tamarinds, Prunes, Currants (fresh or dried, or in jelly), Cranberries with Raisins, steeped either in warm or cold water, or boiled, make excellent Drinks for the sick—especially for Fever patients.

**Lemonade**—Which every body knows how to make, is also an agreeable drink, generally allowable in Fevers, and may be made weak or strong, according to the taste and strength of the patient.

**Apple Water.**—Cut a couple of good-sized sour Apples into thin slices; pour over them 1 quart of Boiling Water; let stand two or three hours, then strain, and, if desired, sweeten a little. Or roasted Apples may be used for the same purpose. This makes a mild and very pleasant drink, and may be used freely.

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## FOR CONVALESCENTS, AND OTHERS.

**Brown (or Graham) Bread**—Is made good of unbolted Wheat Flour, freshly ground. Take lukewarm Water to wet the Flour, and use Yeast and Salt, as for Wheat Bread. Knead in Flour to

make stiff; let stand from one to two hours, till risen, and then bake in loaves of moderate size. This is the best Bread for people who are inclined to be Costive, or who suffer in the least from Dyspepsia.

**To make Unleavened Graham Biscuit.**—Take unbolted (or Graham) Flour, made from best Winter Wheat, add a little Salt, and mix with a spoon, adding Water or Sweet Milk enough to render as thick as cup cake, and drop into small tins and bake in a quick oven, so hot that they will be well done in fifteen or twenty minutes. These cakes are perfectly physiological—excellent for Dyspeptics, and as harmless, eaten warm, as Potatoes.

**Bread Pudding.**—Take about ½ pound of Bread Crumbs, ½ pint of fresh Milk; pour the Milk, hot, over the Bread, and let stand half an hour, covered; then beat up the yelk of 2 Eggs, and add to the Bread; grate in a little Nutmeg; add a little Salt, and Sugar enough to make agreeably sweet, if desired; mix the whole together well; then tie up in a linen or muslin sack, and boil in Water half or three-quarters of an hour; then take out, lay on a plate, and pour over it some melted Butter, with very little Wine or Brandy in it, and, if desired, sprinkle on some white powdered Sugar.

**Potato Pudding.**—Take ½ pound of boiled Potatoes, 2 Eggs (yelks and whites), 2 table-spoonfuls of Butter, ½ pint of fresh Milk, the juice of a Lemon, and a little Salt, and beat all together well; add Sugar to taste, and then bake—either with a crust or not, as may be preferred

# DRUGS, OF OTHER THAN VEGETABLE ORIGIN.

**Acetanilid.**—This is also known as *anti-febrin.* It is a crystalline powder made from some of the coal-tar products. It is the chief constituent of most patent headache powders and pills.

The drug lowers the temperature, relieves pain, and has a tendency to produce sleep. It is used for the pain of neuralgia, sciatica, locomotor ataxia, migraine, and various headaches. The dose is, for an adult, $\frac{1}{2}$ to 5 grains; it should, however, be taken cautiously.

**Antipyrin.**—This drug is much like Acetanilid and is used for the same purpose. It is more soluble in water, and may be given in larger doses, with caution, to twenty grains. Neither of these drugs should be used where there is a weak heart.

**Arsenic.**—Arsenic is a useful drug used as, Arsenous Acid, or White Arsenic, in doses of from a $\frac{1}{60}$ to $\frac{1}{10}$ of a grain, or as Fowler's solution, in doses of from 2 to 10 drops. It is used for Chronic Malaria, many skin diseases, for anæmia, combined with iron, and as an anti-periodic and tonic it is often combined with Iron and Strychnia. Arsenic is the active part of "Paris Green," "Rough on Rats," and other poisons of this nature. It is also used extensively in the arts, especially in wall paper, sometimes causing poisoning by this medium.

**Benzoyl** is a white crystalline powder made from Creosote. It is used in doses of from 2 to 10 grains, as a tonic and general stimulant for Tuberculosis. It is in fact a pleasant form in which to give Creosote.

**Bismuth** is one of the chemical elements. The Subcarbonate, Subnitrate, and Subgalliate are used in medicine; the latter is sold under the name of "Dermatol." Bismuth salts have a sedative action upon the mucous membrane of the stomach, and for this reason are given in gastritis, pain in the stomach and for vomiting. They all have a sort of astringent action upon the intestines and are used to check diarrhœas. The first two may be given in doses of from 5 to 60 grains. The latter, *i. e.*, the subgalliate of Bismuth, up to 10 grains. They are also excellent dusting powders, for the skin and skin diseases and for sores and ulcers.

**Bromides.**—The sodium and potassium salts of bromine are extensively used in medicine in doses of from 5 to 60 grains, for Epilepsy, Sleeplessness, not due to pain, Nervousness, Delirium Tremens, Migraine, and a great number of nervous diseases. Sodium Bromide irritates the Stomach less than does the potassium salts.

**Chloral** is a chemical product composed of white crystals, which are readily soluble in water, of a characteristic odor and taste. This drug is used to produce sleep in cases of sleeplessness, due to other causes than pain. It must be used cautiously by people who have weak hearts. The dose is 5 to 20 grains. When rubbed with an equal part of camphor it liquifies, forming a good liniment.

**Chloroform** is a colorless liquid of characteristic taste and odor. It is a chemical product. It is used internally as a stimulant in doses of 2 to 20 drops. It is also used to make Chloroform Liniment. The greatest use of Chloroform is for producing anæsthesia, *i. e.*, a profound sleep so that surgical operations may be performed painlessly. For this purpose it is administered by inhalation; a cloth or specially prepared mask is held over the face and the Chloroform dropped on; anæsthesia requires a drachm to an ounce.

**Creosote** is a liquid of characteristic odor and taste, obtained by distilling Beech-wood. Its greatest use at present is for Tuberculosis; however, before Carbolic Acid came into use, it was used as an antiseptic and wherever Carbolic Acid is now used. It is administered in the form of capsules, in doses of ½ to 2 drops, but a patient can gradually accustom himself to taking much larger doses. Toothache can often be relieved by putting a drop of Creosote in the cavity.

**Cantharides.**—Spanish Flies are greenish insects (beetles) obtained in southern Europe. The tincture and plaster are the most commonly used of the preparations of Spanish Flies, and mostly for the purpose of blistering.

**Ether** is a colorless liquid of characteristic odor and taste, and a product of the chemist. It is somewhat like Chloroform, and has similar uses. It is a carminative and is used in some cases of Dyspepsia.

**Hydrochloric Acid** is a liquid used in a dilute form in medicine. Its use is based on the fact that normally the stomach secretes Hydrochloric Acid, which is a part of the gastric juice, and which is essential to the action of the other constituent of the gastric juice, the Pepsin. In certain forms of Dyspepsia and other diseases there is a diminished or complete cessation of secretion of the Hydrochloric Acid; hence the administration of dilute Hydrochloric Acid in doses of 5 to 20 drops, after meals.

**Iron** is one of the most important of all the drugs we have. As the blood contains and the system requires a certain amount of this element, there are numerous diseases of blood and body which require Iron. Iron is a constituent of most tonics and is the most important of all blood medicines. The Saccharated Carbonate (often combined with Arsenious Acid), the Tincture and the Syrup of the iodide are the forms most commonly used. The former in 2 to 10 grain doses; the Tincture in 5 to 60 drop doses, and the Syrup in 5 to 30 drop doses. As Iron discolors and injures the teeth, liquid preparations should be taken through a glass tube. Iron is used

wherever a tonic is required, for Anæmia; for Chlorosis; for the purpose of starting the Menses, when their cessation is due to Anæmia or Chlorosis; and also as local applications to stop bleeding, and for a Sore Throat.

**Iodides.**—The Potassium and Sodium Salts of Iodines are most commonly used. They are white crystalline powders, having an extremely salty, bitter taste. They are the products of the chemist. Iodide of Potassium is a specific in Tertiary Syphilis, causing the symptoms (Tumors, Ulcers, etc.) to melt away with wonderful rapidity. Both Salts may be given in doses of 5 to 60 grains, and the patient will gradually be able to tolerate much more.

**Magnesium Sulphate**—(*Epsom Salts*).—This is too well known to require description. It is a product of the chemist. It is a saline cathartic given in doses of from a drachm to an ounce. It is used when a watery stool is desired, *i. e.*, when depletion is required.

**Mercury.**—This is one of the most important drugs we have. In times gone by it has been much abused, but its position is beginning to be recognized. The Bichloride (Corrosive Sublimate), the mild Chloride (Calomel), the Mercurial Ointment (Blue Ointment), and Mercury with Chalk (Gray Powder), are perhaps the four forms most commonly used. Mercury is a *specific* drug for Syphilis, and if properly used will surely cure this dreadful disease. Besides the use of Mercury for Syphilis, it is used as an alterative, glandular stimulant, and cathartic. Bichloride of Mercury is the best and most commonly used antiseptic, used in solutions of one in one thousand to one in fifty thousand of water. The dose of the Bichloride, internally, is $\frac{1}{40}$ to $\frac{1}{12}$ of a grain; of the Calomel $\frac{1}{10}$ to 10 grains. It is best given in divided doses of $\frac{1}{4}$ or $\frac{1}{8}$ grains until it acts. Gray Powder is given in doses of $\frac{1}{2}$ to 10 grains.

**Pancreatin** is the digesting principle of the Pancreatic secretion. It is usually obtained from the fresh pancreas of the hog. It is sold in the drug-stores in the form of a powder, and is given in certain cases of indigestion in 5 to 15 grain doses.

**Pepsin** is the digesting principle of the gastric juice; it is much like and obtained in much the same manner as is Pancreatin. It is used in certain cases of Gastric Indigestion, in doses of 5 to 60 grains.

**Potassium and Sodium Tartrate.**—Better known as Rochelle Salts, with which everyone is familiar. They act as hydragogue cathartics, in doses of from a drachm to an ounce.

**Seidlitz Powder** is an effervescing saline cathartic made in two powders, one containing Rochelle Salts and Bicarbonate of Soda, the other Tartaric Acid, which effervesce upon mixing in water.

**Sodium** is one of the chemical elements which, united with Chlorine, is common salt. Phosphate of Soda is a hydragogue cathartic in doses of 5 grains to 1 ounce; it also has a special action upon the liver.

**Sodium Salicylite** is a white powder made from Oil of Winter-green. It is a specific for Acute Articular Rheumatism, and is also used for some forms of Sore Throat.

For Articular Rheumatism, 10 grains should be given, followed in an hour with 10 grains more, after which 5 grains should be given every hour for three or four hours further. The pulse and heart should be watched closely during the administrations, and, with the least signs of weakness, the drug should be stopped. This is the treatment for an adult. For a child, use smaller doses. For Sore Throat, 5 grains may be given three times a day, after meals.

**Sulphonal.**—Colorless white crystals, the product of the chemist, soluble in hot water, in which it should be administered in 15 to 30 grain doses to produce sleep, unless there is pain which it does not relieve.

# LIST OF MEDICINES AND DOSES

## FOR GROWN PERSONS.

## FIRST CLASS—COMPRISING VEGETABLE SUBSTANCES.

| COMMON NAMES. | PROPERTIES. | DOSES. |
|---|---|---|
| Aconite Leaves, Tincture of | Narcot., Sed. and Nau. | 15 to 20 drops 3 times a day. |
| Aconite Root, Tincture of | Narcot., Sed. and Nau. | 5 to 8 drops 3 times a day. |
| Aconite Root, Fluid Extract of | Narcotic and Sedative. | 5 to 6 drops 3 times a day. |
| Aconite Root, Solid Extract of | Narcotic and Sedative. | ¼ to ½ grain 3 times a day. |
| Aloes, Socotrine, Powdered | Purgative | 10 to 15 grains. |
| Aloes, Socotrine, Comp'd. Dec. of | Purgative and Emmen. | 2 tablespoonfuls. |
| Aloes, Socotrine, Pills of | Purgative | 2 to 3 pills at bedtime. |
| Aloes, Socotrine, Tincture of | Purgative | 3 to 6 drachms at bedtime. |
| Aloes and Myrrh, Tincture of | Emmenagogue | 1 to 2 teaspoonfuls 2 or 3 times a day. |
| Aloes and Myrrh, Pills of | Emmenagogue | 3 or 4 pills twice a day. |
| American Hellebore, (See Veratrum Viride) | | |
| American Colombo, Decoction of | Tonic | Tablespoonful 3 times a day. |
| Anise Seed, Oil of | Carmin. and Aromatic. | 10 to 12 drops on Sugar. |
| Anise Seed, Essence of | Carmin. and Aromatic. | 1 teaspoonful. |
| Anise Seed, Infusion of | Carmin. and Aromatic. | 1 to 2 tablespoonfuls. |
| Arrow Root, Bermuda | Nutritive and Tonic | As a gruel. |
| Asafœtida, Pills of | Anti-spasmodic | 1 to 2 pills. |
| Asafœtida, Milk of | Anti-spasmodic | 1 to 2 teaspoonfuls. |
| Asafœtida, Tincture of | Anti-spasmodic | 30 to 40 drops. |
| Balsam of | Stim., Diur. and Lax. | 20 to 30 drops 3 times a day. |
| Balsam of Peru | Stimulant and Tonic. | 5 or 10 drops twice a day. |
| Balsam of Tolu, Tincture | Stimulant and Tonic. | 30 to 40 drops. |
| Balsam of Tolu, Syrup | Stim. and Expectorant. | 2 teaspoonfuls. |
| Belladonna, Fluid Extract of | Nar., Diaph. and Diur. | 3 to 6 drops. |
| Belladonna, Solid Extract of | Nar., Diaph. and Diur. | ¼ to ½ grain 2 or 3 times a day. |
| Belladonna, Tincture of | Nar., Diaph. and Diur. | 15 to 30 drops. |
| Belladonna, Plaster of | Anodyne and Diaph. | Applied externally. |
| Belladonna, Ointment of | Anodyne | Applied externally. |
| Beth Root, Decoction of | Astringent and Tonic. | Tablespoonful 2 or 3 times a day. |
| Beth Root, Fluid Extract of | Astringent and Tonic. | 25 to 30 drops 2 or 3 times a day. |
| Bitter Root, Decoction of | Alter., Emet. and Diap. | 2 to 3 teaspoonfuls. |
| Bitter Root, Fluid Extract of | Alter., Emet. and Diap. | 20 to 30 drops. |
| Bitter Sweet, Decoction of | Emetic and Narcotic. | Wine-glassful 3 times a day. |
| Bitter Sweet, Fluid Extract of | Emetic and Narcotic. | 30 to 40 drops 3 times a day. |
| Bitterbugle, Fluid Extract of | Astringent and Tonic. | 20 to 40 drops. |
| Black Drop | Narcotic | 10 to 12 drops. |
| Black Cohosh, Decoction of | Nar., Diaph. and Diur. | Wine-glassful 3 times a day. |
| Black Cohosh, Fluid Extract of | Nar., Diaph. and Diur. | 20 to 30 drops 3 times a day. |
| Black Cohosh, Tincture of | Nar., Diaph. and Diur. | Teaspoonful 3 or 4 times a day. |
| Black Hellebore, Decoction of | Hyd., Cath. and Emm. | 2 teaspoonfuls every 3 or 4 hours. |
| Black Hellebore, Fluid Extract of | Hyd., Cath. and Emm. | 10 to 20 drops 3 or 4 times a day. |
| Black Hellebore, Solid Extract of | Hyd., Cath. and Emm. | 2 to 4 grains 3 or 4 times a day. |
| Black Hellebore, Tincture of | Hyd., Cath. and Emm. | 20 to 40 drops 3 or 4 times a day. |
| Black Root, (see Culver's Root) | | |
| Blacksnake Root, (See Black Cohosh) | | |
| Blackberry Root, Decoction of | Astringent and Tonic. | Wine-glassful 3 or 4 times a day. |
| Blackberry Root, Fluid Extract of | Astringent and Tonic. | Teaspoonful 3 times a day. |
| Blackberry Root, Syrup of | Astringent | Tablespoonful 3 times a day. |
| Blessed Thistle, Decoction of | Tonic and Emetic | Tablespoonful. |
| Blue Cohosh, Fluid Extract of | Diuretic and Diaphor. | 30 to 40 drops. |
| Blue Cohosh, Decoction of | Diuretic and Diaphor. | Tablespoonful. |
| Blood Root, Tincture of | Emet. and Expectorant | 30 to 60 drops. |
| Boneset, Infusion of | Stim., Sudor. and Em. | 1 to 2 tablespoonfuls 3 or 4 times a day. |
| Boneset, Fluid Extract of | Stim., Sud. and Emetic | 30 to 40 drops 3 or 4 times a day. |
| Buchu, Infusion of | Diur. and Diaphoretic. | Tablespoonful 4 or 5 times a day. |

| COMMON NAMES. | PROPERTIES. | DOSES. |
|---|---|---|
| Buchu, Fluid Extract of | Diur. and Diaphoretic. | Teaspoonful 3 or 4 times a day. |
| Buchu, Tincture of | Diur. and Diaphoretic. | 1 to 2 teaspoonfuls 3 or 4 times a day. |
| Buchu and Uva Ursi, Fluid Ex. of. | Diuretic and Diaphor. | Teaspoonful 3 or 4 times a day. |
| Buckthorn, Fluid Extract of | Hydragogue Cathartic. | Teaspoonful at bedtime. |
| Burgundy Pitch, Plaster of | Stimulant | Applied externally. |
| Camphor, Gum | Anti-Spas. and Sedat. | 2 to 5 grains. |
| Camphor, Gum | Stim. and Narcotic | 5 to 10 grains. |
| Camphor, Spirits of | Anti-spas. and Sedat. | 10 to 15 drops. |
| Camphor, Spirits of | Stimul't and Narcotic | 20 to 25 drops. |
| Camphor, Water of | Anodyne and Sedative. | 2 to 3 teaspoonfuls. |
| Camphor, Comp'nd Liniment of | Anodyne | Applied externally. |
| Capsicum | | |
| Caraway Seed, Infusion of | Aromat. and Carminat. | Tablespoonful. |
| Caraway Seed, Oil of | Arom., Carm. and Lax. | 4 to 6 drops. |
| Cardamon Seed, Tincture of | Aromatic and Stimul't. | Teaspoonful. |
| Catechu, Powdered | Astringent | 15 to 25 grains. |
| Catechu, Tincture of | Astringent | 1 teaspoonful. |
| Cayenne Pepper, (powdered) | Stimulant | 5 or 6 grains. |
| Cayenne Pepper, Tincture of | Stimulant | 10 to 20 drops. |
| Cayenne Pepper, Infusion of | Stimulant | Gargle for Sore Throat. |
| Cayenne Pepper, Lozenges of | Stimulant | For Sore Throat. |
| Castor Oil | Purgative | 1 to 2 tablespoonfuls. |
| Castor Oil, Emulsion of | Purgative | 2 to 4 tablespoonfuls. |
| Cinnamon, (Powdered) | Astr. and Stomachic | 5 to 10 grains. |
| Cinnamon, Oil of | Astr. and Stomachic | 2 to 4 drops. |
| Cinnamon, Essence of | Astr. and Stomachic | 20 to 30 drops. |
| Cloves, (Powdered) | Stim., Arom. and Carm. | 10 to 15 grains. |
| Cloves, Oil of | Stim., Arom. and Carm. | 2 to 6 drops. |
| Cloves, Infusion of | Stim., Arom. and Carm. | Tablespoonful every 3 or 4 hours. |
| Colombo Root, Decoction of | Tonic | Tablespoonful 3 times a day. |
| Colombo Root, Tincture of | Tonic | Teaspoonful 3 times a day. |
| Colchicum Root, Wine of | Nar., Diur. and Sedat. | 10 to 40 drops 3 times a day. |
| Colchicum Root, Fluid Extract of. | Nar., Diur. and Sedat. | 10 to 20 drops 3 times a day. |
| Colchicum Root, Solid Extract of. | Nar., Diur. and Sedat. | 1 to 2 grains 3 times a day. |
| Colchicum Seed, Wine of | Nar., Diur. and Sedat. | 30 to 60 drops 3 times a day. |
| Colchicum Seed, Fluid Extract of. | Nar., Diur. and Sedat. | 10 to 20 drops 3 times a day. |
| Colchicum Seed, Tincture of | Nar., Diur. and Sedat. | 30 to 60 drops 3 times a day. |
| Conium, Solid Extract of | Nar., Arom. Anti-spas. and Deob. | 2 to 3 grains twice a day. |
| Coriander Seed, Infusion of | Carminative | Tablespoonful. |
| Cotton Root, Fluid Extract of | Emm. Partu. and Abo. | 20 to 30 drops. |
| Cowhage | Anthelmintic | 5 or 6 grains in a teaspoonful of Molasses, before breakfast. |
| Colocynth, Compound Extract of. | Laxative | 5 grains at bedtime. |
| Colocynth, Compound Extract of. | Purgative | 20 grains at bedtime. |
| Cubebs, (Powdered) | Stimul't and Diuretic. | 20 to 30 grains. |
| Cubebs, Fluid Extract of | Stimul't and Diuretic. | 20 to 40 drops. |
| Cubebs, Tincture of | Stimul't and Diuretic. | 1 to 2 teaspoonfuls. |
| Cubebs, Oil of | Stimul't and Diuretic. | 10 to 12 drops on Sugar. |
| Deadly Nightshade (See Belladonna) | | |
| Dover's Powder | Diaphoretic | 10 to 12 grains at bedtime. |
| Elaterium | Hydragogue Cathartic. | ¼ to ½ grain. |
| Ergot, Powdered, (fresh) | Astringent | 15 to 20 grains. |
| Ergot, Fluid Extract of | Astringent | 15 to 20 drops. |
| Ergot, Tincture of | Astringent | 1 teaspoonful. |
| Ergot, Wine of | Astringent | 1 teaspoonful. |
| Fennel Seed, Infusion of | Aromatic, Carminative | Tablespoonful. |
| Fennel Seed, Oil of | Aromatic, Carminative | 3 to 6 drops. |
| Foxglove, Powdered | Diur., Narcot. and Sed. | 1 grain 2 or 3 times a day. |
| Foxglove, Fluid Extract of | Diur., Narcot. and Sed. | 2 to 3 drops 3 times a day. |
| Foxglove, Solid Extract of | Diur., Narcot. and Sed. | ¼grain 2 or 3 times a day. |
| Foxglove, Tincture of | Diur., Narcot. and Sed. | 10 to 20 drops 2 or 3 times a day. |
| Foxglove, Infusion of | Diur., Narcot. and Sed. | Teaspoonful twice a day. |
| Gamboge, Powdered | Cathartic | 2 to 5 grains. |
| Gentian, Tincture of | Bitter Tonic | Teaspoonful 2 or 3 times a day. |
| Ginger, Powdered | Stimulant and Carmin. | 20 to 30 grains. |
| Ginger, Tincture of | Stimulant and Carmin. | 1 to 2 teaspoonfuls. |
| Golden Seal, (See Yellow Root) | | |
| Gelseminum, Fluid Extract of | Nar., Sed., Dia. and Feb | 5 to 10 drops. |
| Gelseminum, Tincture of | Nar., Sed., Dia. and Feb | 10 to 30 drops. |
| Gum Arabic, Mucilage of | Demulcent | Tablespoonful every 3 or 4 hours. |
| Guaiacum Gum, Tincture of | Diur. and Diaphoretic. | Teaspoonful 2 or 3 times a day. |
| Guaiacum Wood, Decoction of | Diuretic and Diaphor. | Wine-glassful every 3 or 4 hours. |
| Henbane, Tincture of | Narcotic and Anodyne | 1 teaspoonful. |
| Henbane, Fluid Extract of | Narcotic and Anodyne | 20 to 25 drops. |
| Henbane, Solid Extract of | Narcotic and Anodyne | 2 to 3 grains 3 times a day. |
| Hemlock Leaves, (See Conium) | | |
| Hemlock Bark, Pow'd. Decoct. of. | Alt., Diaph. and Sudor. | Tablespoonful. |
| Hydrastin, (Active Principle of Yellow Root) | Ast., Ton., Sto., Anti-bil | 1 to 2 grains. |

| COMMON NAMES. | PROPERTIES. | DOSES. |
|---|---|---|
| Indian Hemp, (Foreign) Solid Extract of | Anti-spas., Hyp., Phre. | ½ to 1 grain 2 or 3 times a day. |
| Indian Hemp, (White) Dec'tn. of | Dia., Diur. and Emetic. | Tablespoonful 2 or 3 times a day. |
| Irish Moss, Infusion of | Nutrit., Dem. and Exp. | Tablespoonful. |
| Ipecac, Powdered | Emetic and Diaphoret. | 20 grains. |
| Ipecac, Fluid Extract of | Emetic and Diaphoret. | 20 to 25 drops. |
| Ipecac, Wine of | Emetic and Diaphoret. | 1 to 2 teaspoonfuls. |
| Ipecac, Syrup of | Emetic and Diaphoret. | Tablespoonful. |
| Ipecac, Syrup of | Expectorant | Teaspoonful. |
| Jalap, Powdered | Cathartic | 15 to 30 grains. |
| Jalap, Fluid Extract of | Cathartic | 15 to 30 drops. |
| Jalap, Solid Extract of | Cathartic | 10 grains at bedtime. |
| Juniper Berries, Infusion of | Diuretic | Wine-glassful 3 or 4 times a day. |
| Juniper Berries, Oil of | Diuretic | 5 to 8 drops. |
| Lactucarium | Anodyne | 5 to 10 grains. |
| Laudanum | Narcotic | 15 to 20 drops (adult). |
| Laudanum | Anodyne | 10 to 15 drops (adult). |
| Leptandrin, (Active Principle of Culver's Root) | Cathartic | 5 or 6 grains at bedtime. |
| Liquorice Root, Decoction of | Demulcent and Expec. | Wine-glassful. |
| Liquorice Root, Spanish Ex. of | Demulcent and Expec. | At pleasure. |
| Lobelia Herb, Powdered | Emetic and Diaphoret. | 10 to 15 grains. |
| Lobelia Herb, Infusion of | Emetic and Diaphoret. | 2 teaspoonfuls. |
| Lobelia Herb, Fluid Extract of | Emetic, Diaph. and Ex. | 30 to 40 drops. |
| Lobelia Seed, Powdered | Emetic and Diaphoret. | 5 to 10 grains. |
| Lobelia Seed, Infusion of | Emetic and Diaphoret. | 1 to 2 teaspoonfuls. |
| Lobelia Seed, Fluid Extract of | Emetic, Diaph. and Ex. | 20 to 30 drops. |
| Lobelia Seed, Tincture of | Emetic, Diaph. and Ex. | ½ to 1 teaspoonful. |
| Lobelia Seed, Syrup of | Expectorant | 1 teaspoonful. |
| May Apple Root, Powdered | Hyd., Cathar. and Em. | 15 to 20 grains at bedtime. |
| May Apple Root, Decoction of | Hyd., Cathar. and Em. | Tablespoonful at bedtime. |
| May Apple Root, Fluid Extract of | Hyd., Cathar. and Em. | 20 to 30 drops at bedtime. |
| May Apple Root, Solid Extract of | Hyd., Cathar. and Em. | 5 to 10 grains at bedtime. |
| Manna | Laxative | 1 to 2 drachms before breakfast. |
| Manna, Syrup of | Laxative | 1 to 2 tablesp'nfuls before breakfast. |
| Morphine, Sulphate of | Anodyne and Soporific. | ⅛ to ¼ grain. |
| Mustard Seed, Black, Ground | Stim., Diu. and Emetic | ½ to 1 teaspoonful. |
| Mustard Seed, White, Ground | Stim., Diu. and Emetic | ½ to 1 teaspoonful. |
| Mustard Plaster | Rubefac. and Vesicant | Applied externally. |
| Nux Vomica, Tincture of | Exc., Sti., Ton. and Diu. | 15 to 20 drops 3 times a day. |
| Nux Vomica, Fluid Extract of | Exc., Sti., Ton. and Diu. | 3 to 5 drops 2 or 3 times a day. |
| Nux Vomica, Solid Extract of | Exc., Sti., Ton. and Diu. | 1 grain 3 times a day. |
| Opium, Powdered | Narcotic and Stimul't | 1 grain at bedtime. |
| Opium, Tincture of (See Laudanum) | | |
| Opium, Camphorated Tincture of (See Paregoric) | | |
| Orange Peel, Tincture of | Tonic and Carminative | Teaspoonful 3 times a day. |
| Paregoric | Anodyne | ½ to 2 teaspoonfuls. |
| Peppermint, Infusion of | Stim. and Carminative | Wine-glassful 2 or 3 times a day. |
| Peruvian Bark, Powdered | Tonic and Febrifuge | 1 drachm 2 or 3 times a day. |
| Peruvian Bark, Decoction of | Tonic and Febrifuge | Wine-glassful 3 or 4 times a day. |
| Peruvian Bark, Fluid Extract of | Tonic and Febrifuge | 50 to 60 drops 3 times a day. |
| Peruvian Bark, Solid Extract of | Tonic and Febrifuge | 10 to 20 grains 2 or 3 times a day. |
| Peruvian Bark, Tincture of (Huxhams) | Tonic and Febrifuge | Tablespoonful 3 or 4 times a day. |
| Piperine, (Active Principle of Black Pepper) | Tonic and Stimulant | 1 to 3 grains. |
| Pink Root, Infusion of | Anthelmintic | Tablespoonful before meals. |
| Pink Root, Fluid Extract of | Anthelmintic | ½ to 1 teaspoonful before meals. |
| Pink Root and Senna, Fl'd Ex. of | Anthel. and Purgative | Teaspoonful before meals. |
| Podophyllin, (Active Principle of May Apple) | Drastic and Purgative | 1 to 3 grains at bedtime. |
| Quassia, Infusion of | Bitter Tonic | Tablespoonful after meals. |
| Quassia, Tincture of | Bitter Tonic | Teaspoonful after meals. |
| Rhubarb, Powdered | Cathartic and Astrin. | 20 to 30 grains. |
| Rhubarb, Tincture of | Cathartic and Astrin. | 1 to 2 teaspoonfuls. |
| Rhubarb, Fluid Extract of | Cathartic and Astrin. | 25 to 40 drops. |
| Rhubarb, Syrup of | Cathartic and Astrin. | 2 to 3 teaspoonfuls. |
| Sarsaparilla, Decoction of | Alterative and Deo. | Teacupful 3 times a day. |
| Sarsaparilla, Fluid Extract of | Alterative and Deo. | Teaspoonful 3 times a day. |
| Sarsaparilla, Compound Syrup of | Alterative and Deo. | Tablespoonful 4 times a day. |
| Scammony, Powdered | Cathartic | 10 to 15 grains at bedtime. |
| Skull-cap, Infusion of | Nerv., Sudo. and Diur. | Wine-glassful every 3 or 4 hours. |
| Skull-cap, Fluid Extract of | Nerv., Sudo. and Diur. | Teaspoonful every 3 or 4 hours. |
| Scutellarin, (Active Principle of Skull-cap) | Nerv. Sudo. and Diur. | 1 to 3 grains. |
| Senega Snake Root, Decoction of | Exp., Stimu. and Diur. | Tablespoonful. |
| Senega Snake Root, Fluid Ex. of | Exp., Stimu. and Diur. | 20 to 30 drops. |
| Senega Snake Root, Syrup of | Exp., Stimu. and Diur. | 1 to 2 teaspoonfuls. |
| Senna, Decoction of | Cathartic | 1 to 2 tablespoonfuls. |
| Senna, Fluid Extract of | Cathartic | 1 to 2 teaspoonfuls. |

| COMMON NAMES. | PROPERTIES. | DOSES. |
|---|---|---|
| Stramonium Leaves, Tincture of.. | Nar., Sed. and Anti-sp's | 20 to 30 drops 2 or 3 times a day. |
| Stramonium Leaves, Ointment of. | Sedative | Applied externally. |
| Stramonium Leaves, Extract of... | Narcotic and Sedative. | 1 grain 2 or 3 times a day |
| Thyme, Infusion of | Aromat. and Stomachic | Wine-glassful. |
| Thyme, Fomentation of | Sedative | Applied externally. |
| Thorn Apple, (See Stramonium)... | ..... | ..... |
| Uva Ursi Leaves, Decoction of..... | Tonic and Diuretic..... | Wine-glassful 3 or 4 times a day. |
| Uva Ursi Leaves, Fluid Extract of. | Tonic and Diuretic..... | Teaspoonful 3 or 4 times a day. |
| Veratrum Viride, Fluid Ext. of.... | Arterial Sedative..... | 5 to 6 drops every 3 hours. |
| Veratrum Viride, Norwood's Tincture of | Arterial Sedative..... | 6 to 10 drops every 3 hours. |
| Wild Cherry Bark, Cold Infus. of.. | Tonic, Astrin. and Sed. | Tablespoonful 3 or 4 times a day. |
| Wild Cherry Bark, Fluid Ext. of.. | Tonic, Astrin. and Sed. | 30 to 40 drops 3 times a day. |
| Wild Cherry Bark, Syrup of..... | Sedative | Tablespoonful 3 times a day. |
| White Mustard Seed, (See Mustard Seed) | ..... | ..... |

# SECOND CLASS—MINERAL SUBSTANCES.

| COMMON NAMES. | PROPERTIES. | DOSES. |
|---|---|---|
| Antimonial Wine | Emetic | 2 to 3 drachms. |
| Antimonial Powder, (James')..... | Sudorific | 3 to 5 grains. |
| Arsenic, Donovan's Comp. Sol. of.. | Alterative | 5 to 15 drops 3 times a day. |
| Arsenic, Fowler's Solution of..... | Alterative and Febrif.. | 2 to 10 drops up to a drachm 3 times a day. |
| Bismuth, Subnitrate of | Anti-spas., Absor., Sed. | 5 grains twice a day. |
| Blue Vitriol | Emetic | 1 to 3 grains. |
| Blue Vitriol | Lotion | 3 or 4 grains in 1 ounce of Water for external use. |
| Blue Mass Pills | Alter. and Sialogogue.. | 1, 2, or 3 pills, (5 grains each). |
| Calomel | Alterative | ½ to 1 grain every second night. |
| Calomel | Purgative | ½ to 10 grains. |
| Corrosive Sublimate | Anti-syphilitic | $\frac{1}{20}$ to $\frac{1}{4}$ grain 2 or 3 times a day. |
| Iodine, Tincture of | Counter Irritant | Applied to Inflammations. |
| Iodine, Ointment of | Discutient | Applied to Scrofulous Tumors, etc. |
| Iron, Bromide of | Anti-scor. and Uterine. | ½ to 2 grains. |
| Iron, Carbonate (Rust) of | Tonic and Chalybeate. | 5 to 20 grains. |
| Iron, Citrate of | Tonic and Chalybeate. | 5 grains in Water 3 times a day. |
| Iron, Persulphate (Solution) of.... | Styptic | Applied externally to stop Bleeding, etc. |
| Iron, Per. Hydrogen | Tonic and Chalybeate.. | 3 to 6 grains. |
| Iron, Prussiate of | Tonic and Febrifuge ... | 3 to 5 grains 3 times a day. |
| Iron, Phosphate of | Tonic and Chalybeate.. | 5 to 10 grains. |
| Iron, Pyrophosphate of | Tonic and Chalybeate.. | 1 to 2 grains. |
| Iron, Syrup of Iodide of | Tonic, Alter. and Diur. | 20 to 30 drops twice a day. |
| Iron, Sulphate of | Tonic and Astringent.. | 1 to 2 grains. |
| Iron, Tincture Muriate of | Tonic and Chalybeate.. | 10 to 30 drops. |
| Kermes Mineral | Diaphor, and Diuretic. | 1 grain. |
| Lead, Acetate (Sugar) of | Astringent and Sedat.. | 1 to 3 grains every 3 or 4 hours. |
| Lead, Acetate (Sugar) of | Astr. and Anod. Lotion | 3 or 4 grains in 1 ounce of Water. |
| Lead, Goulard's Extract of | Sedative and Anodyne. | 1 ounce diluted with 1 pint of Water, applied externally to reduce Inflammation. |
| Lead, Goulard's Cerate of | Sedative and Anodyne. | Applied to Inflamed parts. |
| Mercury, with Chalk | Alterative | 10 grains. |
| Mercury, Proto-iodide of | Alter. and Anti-syphil. | ½ to 1 grain twice a day. |
| Mercury, Deuto-iodide of | Alter. and Anti-syphil. | $\frac{1}{12}$ to $\frac{1}{4}$ grain twice a day. |
| Mercury, Red Precip. Ointment.... | Stimulant | Applied externally. |
| Mercurial Ointment (Blue) | Resolvent | Applied externally. |
| Nitrate of Silver, (Crystals) | Astrin. and Anti-spas.. | ¼ to ½ grain 2 or 3 times a day. |
| Nitrate of Silver, Mild Solution of | Stimulant and Deter... | Applied externally. |
| Nitrate of Silver, Lunar Caustic, (Sticks) | Escharotic | Applied externally. |
| Potassium, Bromide of | Anti-scorbutic | 4 to 10 grains. |
| Potassium, Iodide of | Alter. and Anti-syphil. | 2 to 10 grains 3 times a day. |
| Zinc, Acetate of | Astringent Lotion | 30 to 60 grains in a pint of Water. |
| Zinc, Sulphate of | Emetic | 20 to 60 grains. |
| Zinc, Sulphate of | Astringent Lotion | 30 to 60 grains in a pint of Water. |
| Zinc, Valerianate of | Tonic and Anti-spas... | 1 to 2 grains 3 or 4 times a day. |

# THIRD CLASS—SALINE AND EARTHY SUBSTANCES.

| COMMON NAMES. | PROPERTIES. | DOSES. |
|---|---|---|
| Alum, Powdered | Astringent | 3 to 10 grains. |
| Alum, Burned | Escharotic | 5 to 10 grains, moistened with Water and applied externally. |
| Ammonia, Carbonate of | Stimulant | 5 to 6 grains every 3 or 4 hours. |
| Ammonia, Muriate (Sal Ammoniac) | Stimulant | 10 to 20 grains. |
| Ammonia, Water of (Spirits of Hartshorn) | Stimulant and Caustic | 10 to 12 drops diluted with Water. |
| Ammonia, Aromatic Spirits of | Stimulant | 15 to 20 drops diluted with Water. |
| Ammonia, (Volatile) Liniment | Rubefacient | Applied externally. |
| Borax, Powdered | Nephritic and Deter | 15 to 30 grains. |
| Chalk, Prepared | Antacid and Astrin | 10 to 20 grains in mucilage. |
| Chalk Mixture | Antacid and Astrin | 2 to 3 teaspoonfuls. |
| Chemical Food (Compound Syrup Phosphates) | Tonic | 1 to 2 teaspoonfuls. |
| Chloroform | Narcotic and Sedative | 30 to 60 drops in mucilage. |
| Chloroform | Anæsthetic and Narc | As much as is required up to two ounces, inhaled. |
| Chloroform, Liniment of | Anæsthetic and Anod | Applied externally. |
| Common Salt, (Muriate of Soda) | Tonic and Stimulant | 10 to 40 grains. |
| Cream Tartar | Aperient and Refriger | Teaspoonful in Water. |
| Epsom Salts | Cathartic | 2 to 3 teaspoonfuls before bre'kfast. |
| Glauber Salts | Aperient and Cathartic | 1 to 2 drachms before breakfast. |
| Lime, Hypophosphite of | Prophylactic | 2 to 3 grains 3 times a day. |
| Lime, Hypophosphite of, (Compound Syrup) | Prophylactic | 1 teaspoonful 3 times a day. |
| Magnesia, Carbonate | Antacid and Laxative | 10 to 30 grains. |
| Magnesia, Calcined | Antacid and Laxative | 10 to 30 grains. |
| Magnesia, Solution Citrate | Purgative | 8 to 12 ounces before breakfast. |
| Potash, Bicarbonate | Antacid and Diuretic | 10 to 30 grains. |
| Potash, Chlorate | Prophylactic | 10 to 15 grains dissolved in Water. |
| Potash, Chlorate, Solution | Gargle or Wash | 1 to 3 drachms dissolved in 1 pint of Water. |
| Potash, Citrate | Refrigerant and Diaph. | 20 to 25 grains. |
| Potash, Nitrate (Saltpeter) | Refrigerant and Diaph. | 8 to 12 grains. |
| Potash, Prussiate | Anodyne and Sedative. | 10 to 15 grains in Water every 5 or 6 hours. |
| Rochelle Salts | Aperient | 2 to 3 drachms before breakfast. |
| Soda Bicarbonate | Antacid | 15 to 20 grains. |
| Seidlitz Powders | Aperient | 1 powder before breakfast. |
| Spirits Mindererus | Diaphoretic and Diur | 2 to 3 teaspoonfuls. |
| Sweet Spirits Niter | Diur., Diaph. and Feb. | 20 to 60 drops. |

## DECOCTIONS.

Decoctions are prepared by adding 1½ pints of Water to about 1 ounce of the vegetable, and boiling down to 1 pint, and straining through linen.

## INFUSIONS.

Infusions are prepared by adding 1 pint of *Boiling Water* to 1 ounce of the vegetable, and allowing to macerate two or three hours in a covered vessel, then straining.

For Cold Infusions (such as Wild Cherry), use Cold Water.

## SYRUPS.

Syrups may be prepared by adding 2 pounds of White Sugar to 1 pint of Infusion or Decoction, and desolving by the aid of heat.

# ANATOMY, PHYSIOLOGY,

AND THE

# LAWS OF HEALTH

# ANATOMY AND PHYSIOLOGY.

## PRELIMINARY REMARKS.

ANATOMY comprehends a knowledge simply of the structure of the human body and of its various organs. It takes up and examines the different parts of the body separately, as you would examine the various parts of a complicated machine, and acquaints us with the situation, form, and character of each, in the general economy.

PHYSIOLOGY shows us the functions and uses of the different parts and organs of the system; it examines the machine *while in motion*, and explains the various processes by which it is sustained, replenished, and made to grow, live, and act — as Digestion, Nutrition, Circulation of the Blood, and all those phenomena which go to constitute Life and Health. In short, Physiology is the Science of Life.

There are few studies more interesting than Physiology, and none more necessary for all classes. A knowledge of the Laws of Life and Health is of vastly more importance to a young man or young woman than all the French, Music, and Drawing accomplishments taught at the most popular Boarding Schools; or all the Latin, Greek, and Hebrew to be learned at Yale College or Oxford University. Of what value are all the more fashionable accomplishments without health? I say nothing against these things. The attainment of knowledge is commendable in any one, and the embellishments of polite literature and a refined education are always desirable, when they can be had without too great a sacrifice. But they should not be allowed to engross the whole mind to the exclusion of knowledge which has so much more important a bearing on the happiness of our race; for I need hardly say that without health, there can be no real happiness.

It is well to be able to read French, and to paint, and draw, and play on the piano; but it is better to know how to preserve one's health, and when lost, how to regain it, and then how to keep it. It is well to be versed in ancient lore, and to be able to read *Homer's Iliad* and *Cæsar's Commentaries* in their original languages; but it is far better to know ourselves, to understand the laws of our physical

being, and the relation we bear to things around us. In the present state of civilized society, with its Fashions, Luxuries, Vices, and its various styles of Cookery—all more or less filled with the seeds of Disease and Death; and surrounded, as we are, on every hand with Temptation in its thousand luring forms—it is next to impossible to pass through life and enjoy any thing like a reasonable share of health, without a thorough knowledge of the Laws of Life, and of the penalties which God has annexed to their violation. Until recently no department of knowledge has been more neglected than this. But at length a new era has begun to dawn upon our country. Books on Anatomy, Physiology and Hygiene have been prepared for families and schools, and commendable efforts are being made to supply the masses with this most necessary information. The public mind is becoming awakened to the importance of the subject, and well it may; for it is a fact so palpable that all can begin to see it, that mortality and disease are rapidly on the increase, each generation becoming more effeminate, sickly, and short-lived than the one which preceded it. It is an alarming fact that the average duration of human life at the present day, in this and other highly civilized countries, is nearly or quite one-fourth less than it was one or two centuries ago. Why is this? There must be some cause for this degeneracy. Is it not high time that we begin to seek out this cause, and the means for its removal? It is sometimes said that the people of each generation grow wiser and shorter-lived than their predecessors, as though the latter was the necessary result of the other. We grow wiser in some things, I admit—wiser and more ready in devising means and ways and facilities for producing disease and death. In these things we are apt and progressive. But we do not make adequate progress in that knowledge which is the only true remedy againt these evils. While the causes of disease, to be found in our habits luxuries, and manner of living, are rapidly on the increase, the means of preserving life and health have been almost entirely overlooked. Hence the alarming degeneracy of the species, and the increase of mortality and disease The only hope of redemption for our race is in a wide-spread, practical knowledge of ourselves as organized beings—a thorough acquaintance with the philosophy of Existence, the Laws of Health, and the causes which tend to Disease and Premature Death. Let Physiology and Hygiene be taught in all our schools; let every family be provided with practical works on these subjects, and both young and old study them well, and endeavor to live in accordance with the truths they teach—and then there will be some prospect of arresting the downward tendency of the race, and hope of a return to that state of health enjoyed when our grandmothers were little

facts, which we can read about, but of which their grandchildren know but little.

A knowledge of Anatomy, except to the operative Surgeon, is not so important; yet an acquaintance with its outlines, at least, is necessarily connected with the study of Physiology, and can not be dispensed with. Hence I shall proceed first to give a brief but concise view of the Anatomy of the human system. After which the Physiology of the principal processes and functions of animal life will be given in detail, accompanied with practical observations on Hygiene, or the Laws of Health.

# ANATOMY.

THE human organism is divided into *Bones*, *Muscles*, *Arteries*, *Veins*, *Nerves*, and *Viscera*, or Internal Organs.

The body, in its description, is divided into the *head*, *trunk*, and *upper* and *lower extremities*. The trunk is also divided into *chest* or *thorax* and *abdomen*.

## THE OSSEOUS OR BONY SYSTEM.

The bones are the hardest and most solid parts, and are designed as a frame-work or foundation for the attachment and support of the softer parts, to give form and symmetry to the body, and for the purposes of motion and locomotion. When connected together in their natural order, they form what is called the *skeleton*.

The round bones are generally tubular, and the hollow is filled with a medullary substance called marrow, except at the ends or joints, where, instead of being hollow, they are usually enlarged, forming a kind of *head*, which consists of a sort of *net-work* structure, somewhat resembling honeycomb. The flat bones, as those of the *skull* and *scapulæ*, or shoulder-blades, consist of two thin tables, or plates, united by the same kind of net-work structure.

Like all other parts of the body (except the nails and hair), the bones are supplied with bloodvessels and nerves; and in their healthy state contain but little sensibility, compared with the skin and other more sensitive parts. But when in a state of inflammation, they are extremely sensitive and painful. The bones are covered with a very firm, thin, and closely attached membrane, called the *periosteum*. Where this membrane covers the skull, or cranium, it is called *pericranium*.

The number of bones in the human body, including the teeth, is two hundred and forty, proper; though sometimes there are found in the thumbs and great toes what are called the *sesamoid* bones, increasing the number to two hundred and forty-eight. The head (including the thirty-two teeth) contains sixty-three bones; the trunk, fifty-three; the upper extremities, or arms, sixty-four; and the lower extremities, sixty.

These bones are composed of both earthy and animal matter. The earthy portion, which is mainly the *carbonate and phosphate of lime*, gives them their solidity and strength; while the animal portion,

which is mostly *fibrin* and *albumen*, gives to them vitality, and prevents them from being too brittle. If you will calcine a bone—in other words, burn it in a clear fire for ten or fifteen minutes—it will become white and brittle, the animal portion having been destroyed, leaving the lime and chalk, or earthy portion. Again, to show the animal without the earthy matter, place a small bone for a few days in dilute Muriatic Acid, say one part acid and five or six parts water, and the acid will have removed the earthy matter, by its affinity for the lime, leaving the bone unchanged in shape, yet so soft that it may be bent in any direction. In children, while the bones are soft, these two substances are nearly equal; but in adults, there is a much larger proportion of the earthy than of the animal matter in the bones. In the disease called Rickets, the earthy part of the bones has been more or less absorbed, leaving them soft and flexible, or there is some diseased condition of the bone, which interferes with its ability to appropriate, to its structure, the lime salts floating in the blood.

The bones, like all other parts of the body, are formed from the blood, being at first only *cartilage*. By and by, lime salts are deposited in the *cartilage*, when the formation of true bone, or ossification, commences. This process begins at certain points, called the *points of ossification*—generally in the center or middle of the bones, and gradually extends to the surface and ends. When ossification is complete, there is still a gradual and constant change going on in the bones. They increase in size, the proportion of the animal matter decreasing, and the earthy matter increasing, as the person advances in years, till in extreme old age, the earthy substance so preponderates that the bones are extremely brittle and easily broken.

Such bones as form joints, as those of the arms and legs, have a reciprocal correspondence in their shapes at the points of union, the one usually being convex, or round, and the other concave, or socket-shaped, so that they nicely fit together. They are also at these points spongy and porous, which renders them more elastic than if compact and hard, and are also covered with a cushion of cartilage, which acts like India-rubber springs, in preventing or diminishing severe jars and concussions. There is around and about every joint what is called the *synovial membrane*, which secretes a fluid called *synovia*, or joint-water. This is for the purpose of oiling or lubricating the joints and surfaces of the bones and tendons, so that they may move smoothly upon each other, and avoid the friction consequent upon their action.

The bones of the head are divided into those of the *skull*, *ear*, and *face*. The skull is not one continuous bone, but is composed of eight distinct parts, united by ragged edges somewhat like saw-teeth, called

*sutures.* These bones are also composed of two thin plates or tables united by a spongy, porous portion of bone, The outside plate is tough and fibrous; the inside one hard and glassy, and hence called the *vitreous* plate. The skull contains the brain, and we here see the wisdom displayed in guarding that important and sensitive organ. The outside plate being tough and yielding, and the spongy portion between the two, serve to diminish the vibrations and shocks in cases of falls and blows. The skull being composed of several bones, is also calculated to prevent *fractures* from extending as far as they otherwise would, if it was one continuous bone. In all this we see the hand of Intelligence and Wisdom. And there is probably no science in the world, or collection of facts, which contains so much and so conclusive evidence of the wisdom and design of a great First Cause, as that of the Anatomy of the human body.

BONES OF THE HEAD.—(SEE SKELETON).

1. Frontal bone—which constitutes the front part of the head, or the forehead.

2. Parietal, or side bones—one on each side, extending from near the ear to the top of the head.

3. Nasal bones, or bones of the nose. (Two in number.)

4. Occipital bone (Fig. 2)—which is at the back and lower part of the head.

5. Temporal, or temple bone—below the parietal, one on each side, to which the ear is attached.

Besides these there are what are called the sphenoid and the ethmoid bones, which are at the base of the skull, and back of the nose, and can not be shown in the plate. The sphenoid forms the floor of the skull, and has numerous holes or openings through it, affording passages for the nerves and bloodvessels.

6. Malar, or cheek-bone—one on each side.

7. Superior and inferior maxillary bones—or bones of the upper and lower jaws. (Two superior, one inferior.)

Besides the bones I have named, there are several smaller ones in the head and face, as the small bones of the ear, and others not necessary to mention.

BONES OF THE TRUNK.

The spinal column. The vertebræ or bones of the spinal column, or back-bone, are twenty-four in number, and are divided into three parts. The first seven of them, which form the bones of the neck (9), are called the *cervical* vertebræ. The next twelve (X), which constitute the back-bone proper, are called the *dorsal* or *thoracic* vertebræ. The ribs are attached to these. The remaining five (14), constituting the loins or small of the back, are called the *lumbar* vertebræ.

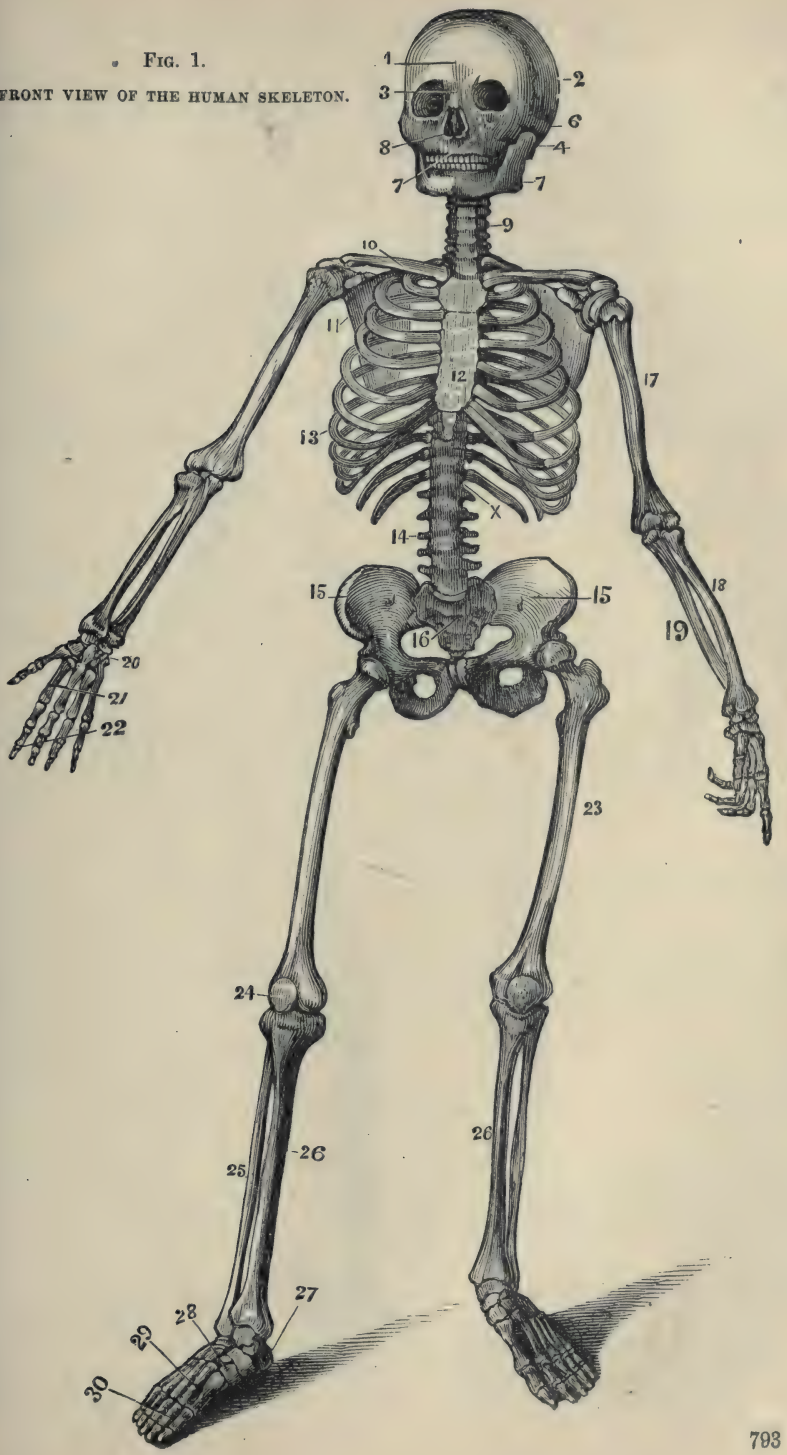
Each vertebra is a separate bone, joined by cartilage, and is of a peculiar shape, yet is so very similar to the vertebræ of the common animals, with which it is presumed every person is so familiar that it needs no description. There is a hole through each one, which, when they are joined together, in the *column*, constitute a canal or tube, for containing the *spinal marrow* or *cord.*

12. The sternum, or breast-bone. In the child this bone consists of eight pieces, which become united, so as to consist of but three pieces in the adult.

13. The ribs. They are attached to the spinal column behind, and the first or upper seven, called the *true ribs*, to the sternum in front. The lower five, called the *false ribs*, are not attached to the sternum. They are usually attached in front to the lower true ribs by cartilage, except the eleventh and twelfth, which are free, *i. e.*, are attached to the spinal column behind, but to no bony structure in front, and for this reason are called floating ribs.

FIG. 1.

FRONT VIEW OF THE HUMAN SKELETON.



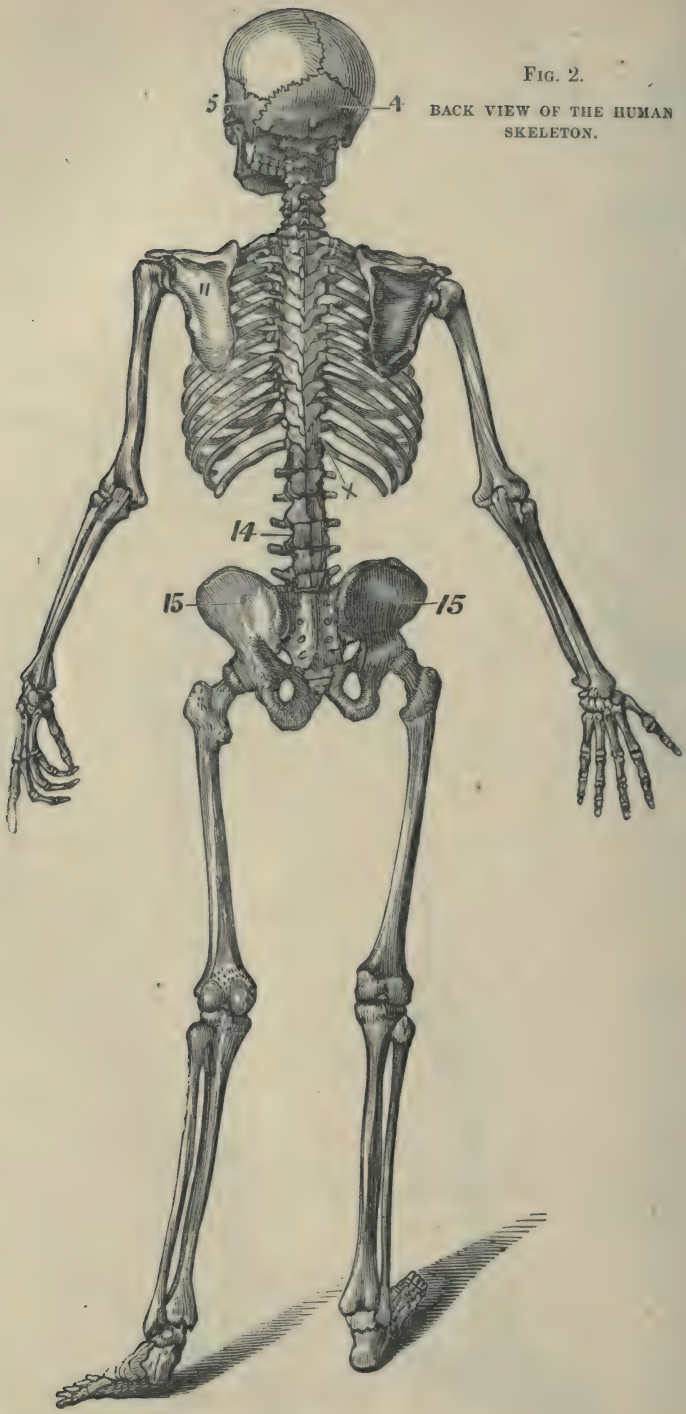



FIG. 2.

BACK VIEW OF THE HUMAN SKELETON.

16. The sacrum, or sacred bone, so called because it was offered in sacrifice by the ancients. The lower end of this bone is called the *coccyx*, or *os coccygis*. It is a small, separate bone, and terminates the spine.

15. Os innominata, or nameless bone, the top of which forms the *hip bone*. This part of the bone is called the *ilium;* the lower part the *ischium;* and where the two unite in front, the *pubis*. In the sides of these large bones (the os innominata), near the lower part, is a deep socket, like a cup, called the *acetabulum*, in which the head of the femur, or thigh-bone, is placed. These two large bones, with the sacrum and coccyx, constitute what is called the pelvis.

BONES OF THE UPPER EXTREMITIES.

10. The collar-bone, called the clavicle. It unites at one end with the sternum or breast-bone, and at the other with the head of the shoulder-blade, and serves to keep the shoulders apart and elevated. There are two of them, one on each side.

11. The scapula, or shoulder-blade. It is a thin, flat bone, of a triangular shape (see Fig. 2), placed on the outside of the ribs, back of and below the shoulder. It has a large head, containing a cavity or socket called the *glenoid cavity*, which receives the upper end of the *humerus*, and to which it is attached.

17. The humerus, or bone of the upper arm.

18. The radius, or bone of the fore arm, which turns with the hand in its rotary movements. This bone is situated on the outside of the arm—the thumb side—and articulates or joins with the bones of the wrist to form the wrist-joint.

19. The ulna, the inside bone of the arm, which articulates with the humerus at the elbow to form the elbow-joint. It is the bone by which the muscles bend the fore arm.

20. The carpus, or wrist, composed of eight little bones of peculiar shapes, arranged in two rows, and so firmly bound together as to permit of only a small amount of movement.

21. The metacarpus, or the five bones constituting the palm of the hand. The first range of the bones of the fingers and thumb is attached to them.

22. The phalanges, or bones of the fingers. The phalanges of the fingers have three ranges of bones, or three joints, while the thumb has but two.

BONES OF THE LOWER EXTREMITIES.

23. The thigh-bone—called the femur, or os femoris. It is the largest bone in the body, and supports the weight of the head, trunk, and upper extremities, and often much additional weight.

24. The patella, or knee-pan. It is a small bone connected with the tibia by a strong ligament, while the tendon of the extensor muscles of the leg is attached to its upper edge. It rests on the fore part of the lower end of the femur, and acts like a pulley in straightening the limb.

25. The fibula, or smaller bone of the leg. It is much smaller than the tibia, and is firmly bound to it at each end.

26. The tibia, or large bone of the leg—the "shin-bone." It is of a triangular shape, and enlarged at each end

27 The heel-bone, called the calcis, and the astragalus, upon which the tibia rests.

28. The tarsus, or bones of the instep. There are five of them, which, like the bones of the wrist, are so firmly bound together as to allow of but little movement.

29. The metatarsus, consisting of five bones also, corresponding to the metacarpus of the hand.

30. The phalanges, or bones of the toes. They consist of fourteen bones, the great toe having two ranges, and all the others three.

The joints form an interesting part of the body. In their construction every thing shows the display of wisdom, and the strictest regard to the security and the facility of motion of the parts thus connected together. Joints are formed by the aid of cartilages, synovial membrane, and ligaments.

### THE TEETH.

The teeth are inserted into the upper and lower maxillary bones, in sockets or openings, termed the *alveola processes*. The teeth differ from other bones in composition and growth; and will not, like bones, unite again when broken. A tooth is divided into two parts, the *crown* and the *root*. The crown is that portion which protrudes from the jaw and gums, and is covered with a hard and highly-polished substance called the *enamel*. The root is the portion inserted in the jaw. This part of the tooth consists of bony matter, and is supplied with nutrient vessels and nerves. It is their nerves which cause them to ache. The first teeth that appear in the infant are called *milk-teeth*, and are twenty in number. They usually disappear, or are shed, about the seventh year, or soon afterward. What are called the *wisdom* teeth—*sapientiæ dentes*—do not appear till the person is twenty years of age. The four front teeth (above and below), are called *incisors;* the next one on each side is called the *cuspid* (eye-tooth); the next two on each side are the *bicuspids;* the next two, the *molars* or grinders; and the last one, on each side, the wisdom tooth. The incisors, cuspids, and bicuspids, have each but one root; the molars of the lower jaw have two roots, while those of the upper jaw have three.

## CARTILAGES.

These are smooth, white, elastic substances, sometimes called *gristle*, which unite bones together, and cover the ends of those which move upon each other, as in the joints. They resemble bone in appearance, but are much softer. There are thin layers of this substance between the joints or vertebræ of the spinal column, about the sixteenth of an inch in thickness, which facilitates the bending movements of the back; and also forming a sort of cushion, they serve to diffuse and diminish the shock in walking, running and jumping. Cartilage is found in all the joints. It is also added to the end of bones to increase their length, as in the front part of the ribs, which consists entirely of cartilage.

## LIGAMENTS.

These are strong, white, fibrous cords, or bands, which connect bones together at the joints, and hold them in their places. They are of various breadths; and sometimes they are so interwoven as to form a broad layer, which entirely surrounds the joint like a bag. In this case they are called *capsular ligaments*, and serve the purpose also of preventing the escape of the *synovial fluid*, which is intended to lubricate the parts. The shoulder-joint is surrounded by one of these capsular ligaments. Ligaments also serve to keep the liver, spleen, and other internal organs, in their places. Like the bones, they possess but little sensibility when in a healthy state; but when attacked by inflammation, they are extremely painful.

## MEMBRANES.

Membranes are thin, expanded substances, which line the cavities of the body and envelop all the organs. They are of different kinds, and vary in structure and appearance as much as they do in function

**Serous Membrane.**—This envelops the brain, lines the chest and abdomen, and covers the lungs, stomach, intestines, and other organs of the abdomen and chest. It has a smooth, shining appearance, and is constantly moistened by a watery or serous secretion, in consequence of which it receives its name. It has different names, however, in different parts of the body, according to the cavity it lines. In the chest, it is called the *pleura*, and when inflamed the disease is called the *Pleurisy*. In the abdomen it is called the *peritoneum*, and that which surrounds the brain is known as the *dura mater*, or *strong mother*. In a state of health it is white, but when inflamed it becomes red, the vessels being charged with blood; it is also apt, when inflamed, to form adhesions to the parts on each side of it, so that the lungs may become glued to the ribs, or the intestines to the internal surface of the abdomen, or to each other. In certain diseases of the heart, liver and kidneys, some or all of the Serous Membranes may secrete more than the normal amount of fluid, causing dropsies of the cavities which they line.

**Mucous Membrane.**—This membrane lines the nose, mouth, throat, air passages of the lungs, stomach, intestines, and other free passages of the body. In the stomach and intestines it is thrown into folds, which increase the extent of its surface and prevent the food from hurrying through the alimentary canal with too much rapidity. It is soft, velvet-like in appearance, and is of a pale pink color when in health, but red when inflamed. It secretes a peculiar fluid, of a slimy nature, which is called *mucus*. Blood frequently exudes from this membrane, constituting *hemorrhage*, which may take place from the lungs, stomach, or any other part which it lines. A false membrane sometimes forms upon its surface, which in Croup is coughed up from the windpipe, and in other diseases, as Dysentery, is discharged from the bowels. This membrane, though ever so much inflamed, never forms adhesions. If it did, the intestines, windpipe, throat, and other free passages, might become closed up, when death would be the inevitable consequence.

**Cellular Membrane.**—This is a loose and very thin membranous structure, which fills the space between the muscles, and between them and other solid parts, connecting them together without interfering with their functions. It may be seen every-where between the muscles and the skin, of a light, shining color, giving a smoothness and softness to the surface of the body. It forms a great many little interspaces and channels, which are kept moist by a serous fluid poured out from the minute branches of the arteries; and if it should be poured out in greater quantities than can be removed by the lymphatics, it fills and distends the cells, and constitutes cellular or general Dropsy.

## THE MUSCLES.

The muscles constitute that portion of the body which we call flesh, and are the proper name of what is known as *lean meat*. Instead of being in one solid, continuous mass, as might be supposed from external appearance, the flesh of the body is found to be composed of a vast number of separate pieces or strips, of various lengths and shapes, but seldom more than half an inch in thickness, each enveloped in a thin, transparent membrane, and the whole arranged in layers one above another, giving to the body bulk, form and symmetry. These are called *muscles*, and, by their contraction and relaxation, produce the various motions of which the body is capable. The human body contains over five hundred—five hundred and twenty-seven, it is said—of these muscles, the most of them being arranged in pairs.

In structure, a muscle is composed of small bundles of fibers, called *fasciculi*, and each of these fibers is composed again of filaments, or threads. These bundles are nicely enveloped in thin cellular tissue or membrane, and the whole put together to constitute a muscle. A great many of the muscles terminate at one or both ends in what is called *tendon*—sometimes constituting *cords*, as in the wrist and ankle—which is a white, hard, firm, inelastic cellular substance, very strong, and is for the purpose of attaching the ends of the muscles to the bones. In some instances the tendon of a muscle spreads out, or expands, in its attachment, and then it is called *fascia*, or *aponeurosis*. This fascia, or expansion of tendon, becomes quite thick in some places, and serves as a protection to parts beneath, as in the palm of the hand, the sole of the foot, and over the abdomen.

Upon the arms and legs the muscles are situated around the bones, and serve to invest and defend them, while they also form to some of the joints their principal protection. Upon the trunk they are spread out to inclose cavities, and form a defensive wall, which yields to internal pressure and the expansion of the body.

Muscles may be arranged into several classes, as to their shapes, and the arrangement of their fibers. Some are completely longitudinal—that is, long and spindle-shaped, each extremity terminating in a tendon, as the muscles of the arms and legs: in others, the fibers are disposed like the rays of a fan, converging to a tendonous point, and constituting what is termed a *radiate*, or broad muscle. Again we find some with their fibers converging like the small feathers upon a quill or pen, to one side of a tendon—or it may be to both sides of it—running the whole length of the muscle. This style of muscle is called *penniform*.

In the description of a muscle, its attachments are expressed by the

terms "origin" and "insertion." The *origin* is the attachment to the more fixed or immovable point, or that *toward* which the muscle draws some other part, in its legitimate action: while the *insertion* is at the more movable point, or part to be acted upon. For instance, the principal muscles which move the arm are attached at one end to the scapula, or shoulder-blade—this is called their *origin;* while the other end is attached to some portion of the humerus, or bones of the arm, and is called their *insertion.* The principal muscles which pro duce the motions in the lower extremities have their *origin* upon some portion of the large bones of the hip or pelvis, while their *insertion* is upon the femur, or bones of the leg. The interstices between the muscles, especially in young persons, are generally filled with a substance called *adipose* matter, or fat, which gives to the different parts of the body a round and plump appearance.

In conformity with the general divisions of the body, the muscles, like the bones, may be arranged into four parts. 1st. Those of the Head and Neck. 2d. Those of the Trunk. 3d. Those of the Upper Extremities. 4th. Those of the Lower Extremities. In their distribution they may be said to form two layers, a superficial and a deep-seated one. Though in some places there are more than this. On the back, for instance, the muscles are arranged in six layers, one above the other, in order to produce the various and complicated movements of the back, neck, arms, chest, and abdomen. All the various movements of the body, and of its different parts, are produced by the muscles, the bones serving, in most cases, as the levers of motion.

Those muscles by which a limb is bent, are called *flexors*, and those by which it is straightened, *extensors.* These two sets of muscles are said to *antagonize* each other: that is, the flexors pull in one direction, and the extensors in another, so that by their alternate contraction and relaxation, two distinct and opposite motions are produced.

The muscles are also classified under the two heads of *voluntary* and *involuntary.* The first are such as are under the control of the will, and enable us to walk, run, leap, and perform any other voluntary act. The muscles by which we bend the arm, open and shut the mouth, etc., are *voluntary* muscles, because we call them into action at pleasure, by an effort of the will.

The involuntary muscles are those over which the will has no influence. The heart is a muscular organ, acting with tremendous force in propelling the blood through the arteries; the stomach also, and the intestines, have muscular coats, by which they are enabled to contract and relax for the purpose of moving their contents; yet they are uncontrolled by the will, acting independent of it, and are thero

fore denominated *involuntary* muscles. There are others which are both voluntary and involuntary, and are therefore said to be *mixed*; as the diaphragm, and other muscles of respiration. They perform their regular functions, asleep or awake, whether we will it or not; yet we can, by an effort of the will, cause them, for the time being, to act quicker, faster or slower, as we please.

Muscles are acted upon and controlled by the *nerves*. Contractility is an inherent quality of muscular fiber, enabling it to shorten its substance, like a piece of India-rubber, when the proper stimulus is applied, and again relaxing when the stimulus is withdrawn. This stimulus is *nervous energy*, which acts upon the muscles somewhat similar to Electricity. The velocity of muscular contraction, or rapidity with which the voluntary muscles may be made to act, is truly astonishing. It is often as quick as thought. This may be seen in rapid speaking, or playing upon a musical instrument. Persons have been known to utter distinctly fifteen hundred letters in a minute, the pronunciation of each letter requiring both contraction and relaxation of the same muscles, thus making *three thousand actions in a minute!* It is owing to the contractility of the muscles, and the wonderful power which the will or mind (which furnishes the nervous stimulus) has over them, that we are enabled to pursue the various avocations of life. "By their action the farmer cultivates his fields, the mechanic wields his tools, the sportsman pursues his game, the orator gives utterance to his thoughts, the lady sweeps the keys of the piano, and the young are whirled in the mazy dance."

The oblique abdominal muscles terminate in a broad pearl-colored fascia, or *aponeurosis*, which completely covers the front or middle portion of the abdomen; while the dorsal muscles, or muscles of the back, blend into one mass of tendon below, which expands and attaches to the sacrum, and back part of the iliac crest, or hip-bones. On the wrists and ankles, the long tendons of the muscles are closely and firmly bound down by strong bands, called the *annular ligaments*.

Notwithstanding their great number, the muscles all have names—Latin names, some of them long and difficult to remember. These names generally have reference in their meaning to the character or use of the muscles to which they are applied, so that if we understood the Latin language as well as we do the English, we should, on hearing the name of a muscle, immediately know something of its general character, situation, and use.

It would be as useless, perhaps, in a work like this, to give the names of all the muscles, and their "origin" and "insertion," as it

would be difficult to convey an exact idea of them. The only way to get a correct knowledge of the muscles, as to their shape, size, and location, is by seeing them dissected on the real subject. But such a knowledge, even, is of but little practical use to any one except the anatomist or surgeon. It is well to know that we have muscles, and to understand the general character and use of them. It is still more important to know how to take care of our muscles—how to develop them properly and keep them in a healthy condition.

The accompanying engravings will give you an idea, as well as it can be done on paper, of the character, shape, and appearance of the muscles. They exhibit only the superficial or outside muscles, such as would be seen on removing the skin from the body. Underneath them is one or two, and in some places several layers of other muscles. Such as can be seen in the Figures are numbered, and their names and uses given in the following tables.

### NAMES OF THE PRINCIPAL MUSCLES, AND THEIR USES.

#### FIG. 3—FRONT VIEW OF THE MUSCLES.

1. Occipito-frontalis—to raise the eyebrows, and move the scalp.
2. Orbicularis palpebrarum—to close the eyelids.
3. Levator labia superioris—to elevate the upper lip.
4. Zigamaticus major; 5. Z. minor—to elevate angles of the mouth.
6. Masseter anterior—to bring the jaws together in chewing.
7. Orbicularis oris—to close and pucker the mouth.
8. Depressor labii inferioris—to depress the lower lip.
9. Platysma myoides (and 6, Fig. 4)—to bend the neck forward.
10. Deltoid (and 8, Fig. 4)—to elevate or raise the arm.
11. Pectoralis major—to bring the shoulder forward.
12. Latissimus dorsi—to draw the arm backward and downward.
14. Biceps flexor cubiti—to bend the arm at the elbow.
15. Triceps extensor cubiti—to extend the fore arm.
16. Supinator radii longus—to bend the wrist.
18. Flexor carpi radialis longior—also to bend the wrist.
19. Flexor communis digitorum—to bend the digits, or fingers.
20. Annular ligament—a strong ligament which surrounds the wrist, to hold the muscles and tendons down to their place. It is a perfect *wrist-band.*
21. Palmar fascia—or fascia of the palm of the hand—a tendonous structure, spread out to protect the structures beneath.
22. Obliquus externus abdominus—to support the bowels.
26. Psoas magnus—27. Abductor longus—28. Sartorius—these three muscles bend the lower limbs at the hip-joints. The sartorius is called the "tailor's muscle," because it is the muscle used in drawing one leg over the other, in the position of a tailor when sewing.
29. Rectus femoris—30. Vastus externus—31. Vastus internus—these three extend or straighten the leg at the knee.
32. The tendon of the patella.
33. Gastrocnemius—to extend the foot.
34. Tibialis anticus—to bend the foot at the ankle.
36. Tendons of the extensor digitorum communis—to extend the toes.

FIG. 4—BACK VIEW OF THE MUSCLES.

3. Complexus—to draw the head backward.

4. Splenius (two, S. colli and S. capitis)—to draw the neck backward, and rotate the head.

5. Masseter—to close the jaws.

6. Sterno-cleido—mastoideus—to draw the head forward.

7. Trapezius—to draw the shoulder up and backward.

8. Deltoid—to raise the humerus.

10. Triceps extensor—to extend the fore arm; 13. Tendonous portion of the triceps; 14. Anterior edge of the triceps.

15. Supinator radii longus—to supinate the hand, or turn it upward.

17. 22. Extensor communis digitorum—to extend or straighten the fingers.

18. Extensor ossis metacarpi pollicis—to extend the first metacarpal bone; 19. Its tendons.

20. Olecranon process of the ulna and insertion of the triceps.

21. Extensor carpi ulnaris—to extend the hand.

24. Latissimus dorsi—to draw the arm backward and downward; 25. Its tendonous origin.

26. Obliquus externus—to support the bowels.

27. Gluteus medius—to rotate the thigh outward and inward.

28. Gluteus magnus—to draw the thigh backward.

29. Biceps flexor cruris—to flex or bend the leg.

30. Semi-tendinosus—to assist in bending the leg.

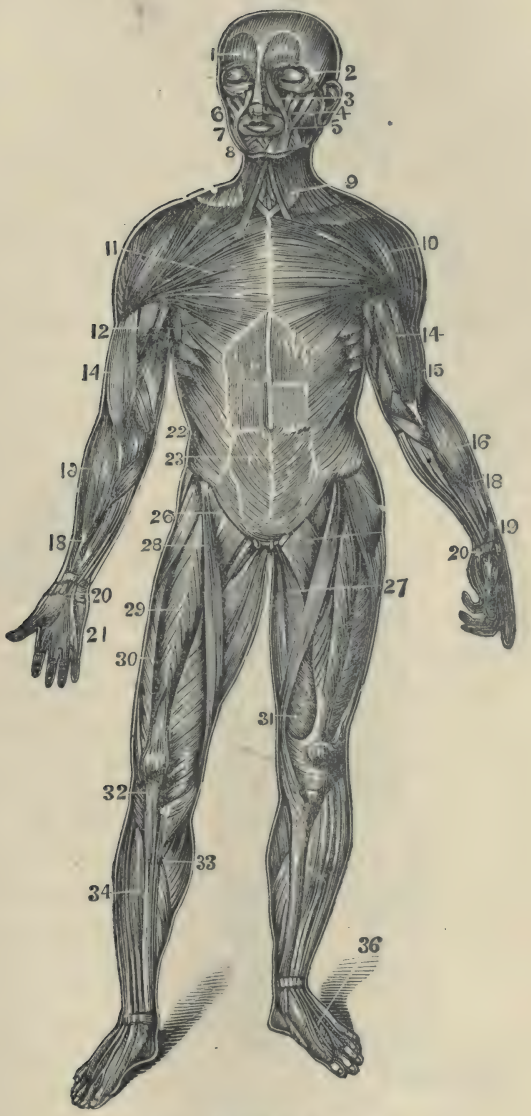
31. 32. Gastrocnemius (internus and externus)—to extend the foot.

33. Tendo Achillis—the great tendon or cord of the heel.

Alternate exercise and rest constitute the great law of muscular health and development. The muscles should be used, in order that their size and strength may be equal to the demand made upon them. It is a law of the muscular system that whenever a muscle is called into frequent use, its fibers increase in thickness—within certain limits—and become capable of acting with greater force; while, on the contrary, the muscle that is little used, decreases in size and power. This exercise, or use of the muscles, however, must be properly regulated, and confined within certain limits. Too much, or too long continued exertion, is injurious. Relaxation should quickly follow contraction, or exhaustion of the muscle will be the consequence. So must rest follow exercise, and it must be continued long enough for the nutrition and recruit of the muscles to take place, or they will become lessened in size and diminished in power. Exercise, either for pleasure or profit, should never be carried to the point of languor or exhaustion. When it is desirable to develop or strengthen the muscular system, exercise should be taken moderately at first, and gradually increased as the system can bear it.

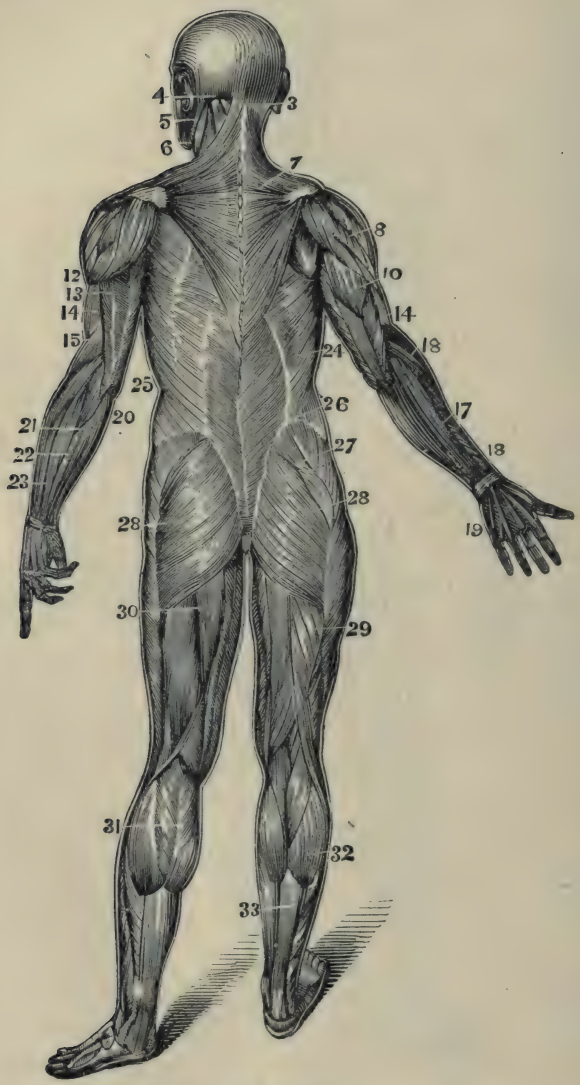
Massage of the muscles—in other words, rubbing them—is very beneficial. It hastens the process of nutrition, and locally increases the blood supply. The whole body should be well rubbed once or twice a day. The horse will travel further and easier, if not

Fig. 3.




FRONT VIEW OF THE MUSCLES.

FIG. 4.




BACK VIEW OF THE MUSCLES.

only rubbed daily, but also at such times as the traveler stops to rest. "It is a matter of surprise," says a popular writer on Physiology, "that the experience and common sense which lead every person who owns a horse, to have him well groomed every day, should not have taught men that the same good thing should be done for the human body, which will, in fact, be more benefited by rubbing than any animal. Every laborer with muscles or brain, every gentleman or lady of leisure, who cares to labor easily, enjoy comfort, or appear gracefully, should equally and daily practice rubbing the body from head to foot."

The regular exercise of the muscles should be conducted under proper mental influences. The mind and the body reciprocate in their influences, upon each other. The mind has much to do with the beneficial exercise of the muscles, while inactivity of the muscular system produces ennui, and dullness of intellect, which nothing but exercise can remove. In fine, proper and judicious exercise produces delightful sensations, a clearness of intellect, and elasticity of spirits, that the indolent never know. While, in order to a healthy exercise of the muscles, there should be an active intellect, cheerful disposition, wholesome food, plenty of pure, cool air, and loose warm clothing in cold weather, and loose cool clothing in warm weather.

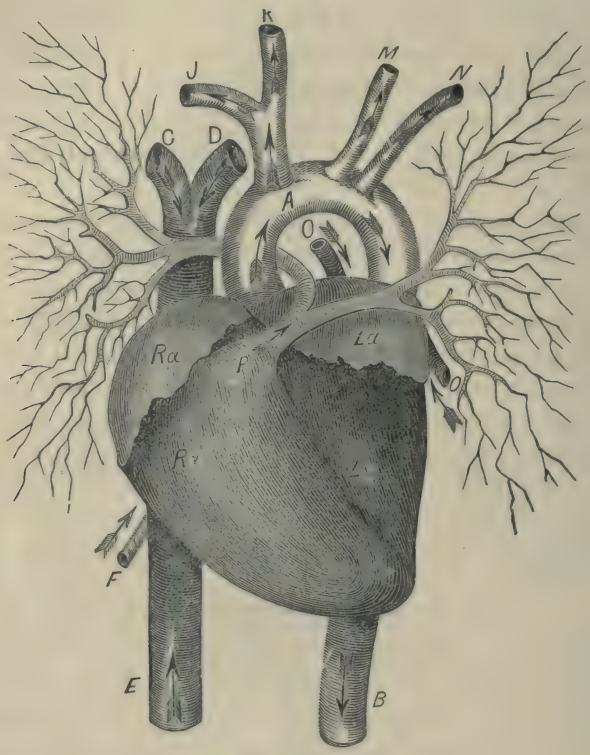
## THE CIRCULATORY ORGANS.

**The Heart.**—The heart is a very strong muscular body, which propels the blood through the arteries to every part of the system. It is somewhat in the shape of an inverted cone, and is situated in the chest, a little to the left of the sternum, or breast-bone, its lower end, or apex, resting on the tendonous portion of the diaphragm, about three inches from the sternum, opposite the space between the fifth and sixth ribs of the left side. The heart is surrounded by a strong membranous sac called the *pericardium*, which protects it, and confines it to its proper place. It occupies an oblique position in the chest, and is almost wholly covered by the lobes of the left lung. The medium weight of the heart, in adults, is from eight to ten ounces, being about an ounce heavier in man than in woman.

The heart has four cavities, two of which are called *auricles*, and two *ventricles;* and from its peculiar construction may properly be called a double organ, having two sides, the right and the left, with an auricle and ventricle in each. The compartments of the two sides are separated by a muscular partition, called the *septum*. The *aorta*, or great artery-trunk, and the *pulmonary artery*, proceed from the heart—the latter from the right ventricle, and the other from the left ventricle. The large trunks of the veins, called the descending and

ascending *vena cava*, and the *pulmonary veins*, terminate or open into the auricles of the heart.

FIG. 5.




VIEW OF THE HEART.

FIG. 5.—Ra, Right auricle; Rv, Right ventricle; La, Left auricle; Lv, Left ventricle A, great aorta and its arch; B, aorta descending into the abdomen; C, right subclavian vein, coming from the right arm; D, left subclavian vein, coming from the left arm—these two branches unite and form the descending vena cava; E, ascending vena cava which returns the blood to the heart from the lower extremities; F, vein returning the blood from the liver, spleen, and bowels; H, arteria innominata, dividing into right carotid artery (K), which goes to the right side of the neck; and right subclavian artery (J), which goes to the right arm; M, left carotid artery, going to the left side of the neck; N, left subclavian artery, going to left arm; P, pulmonary artery, which rises from the right ventricle and divides, one branch, passing under the arch of the aorta, goes to the right lung, the other goes to the left lung; O, O, pulmonary veins, which return the blood from the lungs to the heart—they empty into the left auricle. ☞ The arrows show the course of the blood in the arteries and veins.

The auricles differ in the strength and thickness of their walls from the ventricles, being thinner, and of a bluish color. They serve as a sort of *reservoirs* or *receivers* of the blood, as it arrives by the veins. The ventricles have their walls thicker than the auricles, because

greater strength is required of them, to force the blood out and through the arteries; and the walls of the left ventricle are thicker than those of the right, for the reason that greater power is required of it. The right ventricle only propels the blood to the lungs, while the left forces it to all parts of the body. Each of the cavities of the heart will contain about two ounces of blood. The offices or functions of these parts will be more fully explained when we come to speak of the circulation of the blood.

The action of the heart consists in its *contraction* and *dilatation*, and as incredible as it may seem, it contracts every twenty-four hours, in a healthy, grown person, over *one hundred thousand times!* Asleep or awake, the action of this important and wonderful organ goes constantly on.

The *pericardium*, which surrounds the heart, secretes from its internal surface a watery fluid, which serves to lubricate the exterior of the heart, and thus prevent friction between the two. Sometimes, when diseased, a deposit of water takes place within the pericardium and around the heart, constituting *Dropsy of the Heart.*

The true office of the heart was not fully known till Harvey discovered the circulation of the blood. Yet so long ago as the days of Plato it seems that a tolerably rational idea of its function and of the circulation of the blood was entertained, for in speaking of this organ that writer very prettily observes: "It is the center or knot of the bloodvessels; the spring or fountain of the blood, which is carried impetuously round; the blood is the food of the flesh; and for the purpose of nourishment, the body is laid out in canals, like those which are drawn through gardens, that the blood may be conveyed as from a fountain to every part of the body." It would be difficult for any one at the present day to give, in as few words, a more correct and expressive idea of the whole subject than is here given by this ancient heathen philosopher.

## THE ARTERIES.

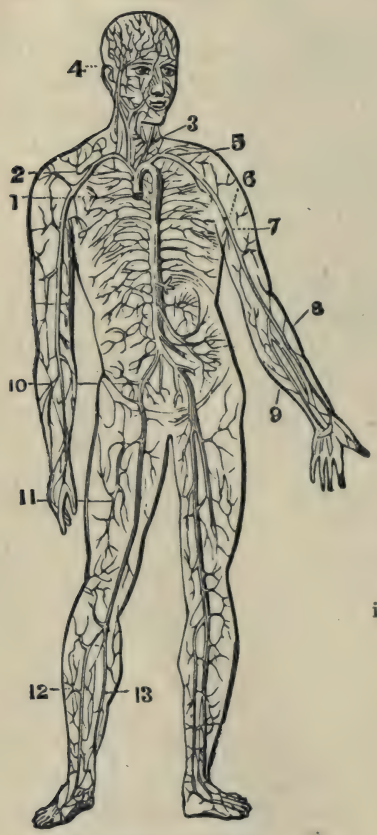
The arteries are strong, elastic, membranous tubes, which arise from the heart by two trunks, and convey the blood, by their innumerable branches, from the heart to every part of the system. They are composed of three coats. The outside, called the *cellular* coat, is firm, strong, and elastic, enabling it to withstand the impulse of the blood as it is sent from the heart. The middle or *muscular* coat is composed of yellowish-white fibers—is thicker than the external coat, but not so strong, as its fibers pass around the tube instead of lengthwise. The inner coat is a thin, serous membrane, which lines the

interior of the artery and gives it a smooth surface, permitting the blood to flow along it freely.

The arteries are enveloped in sheaths of a loose cellular texture (the same which envelop the muscles), which separate them from the adjacent parts, and also inclose the veins and nerves which generally accompany them.

All the larger arteries are deeply seated, by which arrangement they are protected from injury by accidents, while the veins, which do not involve so serious consequences in case of wounds, are generally placed near the surface of the body—often immediately under the skin, as on the back of the hand, and upon the wrist.

FIG. 6.




THE ARTERIAL SYSTEM.

FIG. 6—THE ARTERIAL SYSTEM:

1. Commencement of the aorta, where it leaves the heart.
2. Arch of the aorta.
3. Carotid artery—(one on each side).
4. Temporal artery.
5. Subclavian artery.
6. Axillary artery.
7. Brachial artery.
8. Radial artery.
9. Ulnar artery.
10. Iliac artery.
11. Femoral artery.
12. Tibial artery.
13. Peroneal artery.

☞ All of these arteries are in pairs; that is, one on each side, or in each extremity.

The aorta, which conveys the pure blood to all parts of the body, proceeds from the *left ventricle* of the heart, rises toward the left clavicle or collar-bone, and turns in the form of an arch toward the back and left side, and passes down behind the heart, through the diaphragm, along the spine, sending off numberless branches—which

also divide and subdivide, like the branches of a tree—to all the internal organs and parts of the body, and finally, in the lower part of the abdominal cavity, it *bifurcates*—that is, divides into two main branches, one passing down each leg, constantly sending off branches, till the whole terminate in what are called *capillaries*—small blood-vessels too delicate to be seen distinctly without the aid of a microscope, and which will be described presently.

From the top of the arch of the aorta, three main branches go off. The first, or the one on the right, soon divides, a branch going to the right arm—the right subclavian artery—and the other to the right side of the neck and head—the right carotid artery. The other two branches pass, one to the left side of the neck and head—left carotid—and the other, the left subclavian, to the left arm; all of which divide into innumerable branches, which finally terminate in the *capillaries*. The aorta, with its branches, which divide and subdivide to their ultimate ramifications, thus pervading every part of the human frame, constitute what is called the great arterial tree.

The pulmonary artery commences in front of the origin of the aorta, from the *right ventricle*, and ascends obliquely to the under surface of the arch of the aorta, where it divides into two branches, one of which passes under the arch to the right lung, the other to the left lung. These also divide and subdivide in the structure of the lungs and terminate in the capillary vessels, which form a fine *net work* around the air-cells of the lungs, and connect with the minute extremities of the pulmonary veins. This artery conveys the impure blood to the lungs, as will be more fully explained hereafter.

## THE VEINS.

The veins are the vessels which return the blood to the heart after it has been circulated by the arteries through the various tissues of the body. They are thinner and more delicate in their structure than the arteries. The blood passes through them slower than through the arteries, and not being propelled by such great force, as in the latter, it is not necessary that they should be so strong in their texture. They are, like the arteries, composed of three coats, the *cellular*, the *muscular*, and the *serous*.

**The Capillaries.**—Before proceeding further with the veins, it is proper to speak of the capillaries, as they form the connecting link between the arteries and the veins, receiving the blood from the one and transmitting it to the other. They are distributed through every part of the body, constituting a complete net-work, and rendering it impossible to insert the point of the finest needle into the skin or any part of the flesh without wounding them and causing the blood to flow. These little vessels are called *capillary* (which means *hair*) on

account of their being so small; but a hair, compared with such tubes, says Magendie, is a huge cylinder! They are so small that the aid of a microscope is required to see them. One of the characteristics of *inflammation* is the red appearance of the part; this is owing simply to the fact that the capillary vessels are distended and highly charged with blood. The same is seen when a lady blushes. It is the stagnation of the blood in its passage through these vessels that produces the phenomena of inflammation. The capillaries perform the important function of carrying the blood to and distributing it amongst the ultimate parts or cells of which the body is composed; the walls of the capillaries are so thin that adjacent cells can readily extract oxygen and nitrogen from the blood, without the complete escape of the latter.

FIG. 7.




THE VENOUS SYSTEM.

FIG. 7—THE VENOUS SYSTEM:

1. The right auricle.
2. Descending vena cava.
3. Ascending vena cava.
4. Right and left iliac veins.
5. Right and left subclavian veins
6. Jugular vein of right side.

As the veins proceed, their various branches, like the branches of a river, coalesce, or unite, to form still larger branches, till they finally terminate in the large trunks, which convey the blood direct to the heart. In diameter the veins are much larger than the arteries. They are also furnished with numerous *valves*, particularly the large veins of the extremities, which allow the blood to flow freely toward the heart, but operate to prevent any retrograde movement.

The veins that receive the blood from all parts of the body, follow nearly the same course as the arteries, and at last unite to form two large trunks, called the ascending *vena cava*, and the descending *vena cava*. The ascending cava is that which receives the blood from the lower extremities and the regions of the abdomen; while the descending cava receives the blood from the upper parts of the body; and both empty their contents into the *right auricle* of the heart.

There is a peculiarity, however, in the veins that come from the stomach, spleen, and intestines. They unite to form a large vein called the *vena porta*, which enters the liver, and there divides and ramifies that organ like arteries, and then unite again into a common trunk, which enters the ascending vena cava near the heart. This is called the *portal circulation.*

Besides these there are the two *pulmonary veins*, which rise in the substance of the lungs, from the numerous capillaries, and return the blood from those organs, after it has been purified, to the *left auricle* of the heart.

All the blood-vessels, but more especially the arteries and capillaries, are supplied with nerves, some of which cause the muscles of the vessels to contract, others to expand; this system of nerves is called the *vaso-motor system;* the ones which dilate the vessels are called *vaso-dilaters*, and the ones which contract, the *vaso-constrictors.*

Blushing is due to a stimulation of the *vaso-dilaters.* Cold stimulates the *vaso-constrictors*, while heat stimulates the *vaso-dilaters;* hence the red glow of the skin following a hot bath.

Certain drugs possess the power of stimulating one or the other of these systems, for example: Amyl nitrate is a vaso-dilater, because it stimulates the *vaso-dilaters*, while ergot is a vaso-constrictor, because it stimulates the *vaso-constrictors.* It is seen that by means of these nerves the caliber of the vessels can be altered, as a result of which the amount of blood to a part may be varied from time to time, depending upon requirements, or the use of drugs.

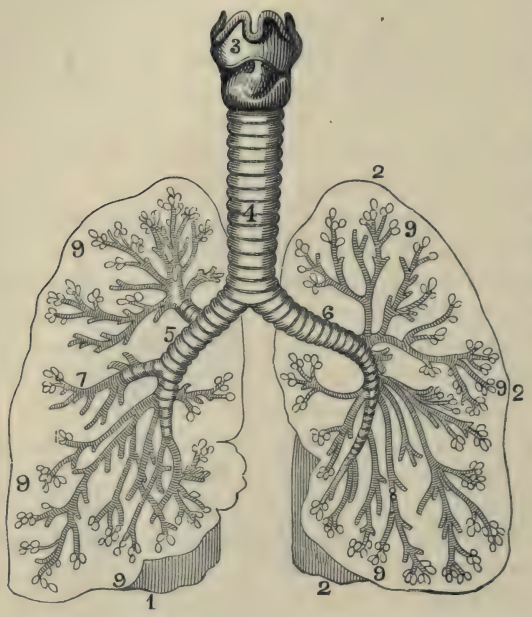
## THE RESPIRATORY ORGANS.

**The Lungs.**—The respiratory organs are the *lungs* (in animals called the *lights*); the *trachea*, or windpipe; the *bronchia*, or bronchial tubes, and the *air-cells*—which are innumerable little cells at the extremities of the bronchial tubes. The *diaphragm*, *ribs*, and several *muscles*, also aid in the respiratory, or breathing, process.

The lungs are soft, spongy bodies, occupying the cavity of the chest, or thorax, situated on each side of the heart, and are attached to the neck by means of the trachea, or windpipe. They consist of two portions, called the *right* and the *left* lung, which are separated from each other by a space called the *mediastinum.* This space—*mediastinum*—is not empty, but is partially occupied by the heart; it also contains the large blood vessels, trachea, œsophagus, and other structures.

The shape of the lungs, as a whole, corresponds with the cavity of the chest, being rounded or convex next the ribs, and hollow or concave next the heart and diaphragm. In color they are of a grayish red, but in old age change to a livid purple. The great serous membrane, already described, which lines the inside of the chest, called the *pleura*, is reflected

FIG. 8.




**1, 1. An outline of the right lung.**
**2, 2. An outline of the left lung.**
**3. The larynx.**
**4. The trachea, or windpipe.**
**5, 6. The right and left bronchial tubes, which go to the right and left lungs, and divide into innumerable branches which terminate in the little air-cells, 9, 9, 9, 9, a very imperfect idea of which is shown in the figure.**

FIG. 8—THE TRACHEA AND AIR-TUBES OF THE LUNGS.

upon the lungs, and forms their external covering or coat. That is to say, the pleura is *double*, one lamina of it lining the inside of the ribs, or costals, called the *pleura costalis;* and the other—a continuation of the same—which covers the lungs, called the *pleura pulmonalis*. The right lung is the larger (because the heart takes up a portion of the left side of the chest), and is divided into three portions, called *lobes*. The left lung has but two lobes—the heart and its surrounding membrane, the pericardium, being situated between them.

The trachea, or windpipe, passes down in front of the œsophagus or foodpipe, and may be distinctly felt, being immediately beneath the skin. Just below the top of the breast-bone it divides laterally into two branches, called the *bronchia*, which go direct to the lungs, and there divide and subdivide into an immense number of little tubes, constituting the air-passages of the lungs, which gradually diminish in size, and finally terminate in what are called the *air-cells*. These cells are small, very thin, and communicate freely with each other. The membrane which composes these cells is continued throughout the air-passages, and is estimated to be equal in extent to near 22,000 square inches. Hence it will be seen that the lungs are capable of containing a large amount of air. The quantity that enters at

each *inspiration* is supposed to be about 40 cubic inches, and an equal quantity, of course, is given out at each *expiration*. Hence, supposing there are 20 inspirations in a minute, which is nearly correct, the quantity of air that would enter and pass out every minute would be 800 cubic inches; and at the same rate it would amount to 48,000 cubic inches in an hour, and 1,152,000 every twenty-four hours.

The process of breathing is of the greatest importance in the animal economy. The lungs are the great laboratory of the system, for the purpose of purifying the blood and rendering it fit for circulation, for the purposes of nutrition, and the production of animal heat—as will be explained hereafter.

The cells and air-passages of the lungs are lined with a delicate, thin, mucous membrane, which becomes at times the seat of various disorders, as Croup, Asthma, Bronchitis, Influenza, and Whooping-cough. It also performs the function of *absorption*, and will take up the poisonous properties of tobacco smoke, the fumes of spirits, and other volatile substances, which often produce very deleterious effects.

**The Diaphragm.**—The diaphragm is a thin, muscular partition between the chest and the abdomen, extending crosswise of the body, and is attached by its margin to the spine, to the lower ribs on each side, and in front to the sternum, or breast-bone. It separates the respiratory organs from those of digestion, or rather the heart and lungs from the stomach, liver, spleen, etc. The diaphragm rises upward within the chest, so as to form an arch, the lungs resting upon its upper surface, while the stomach and liver accommodate themselves to the concavity of its lower surface. It is perforated by the *œsophagus*, or foodpipe, which passes to the stomach, and by several other important tubes, among which are the great aorta, and ascending vena cava.

The diaphragm is the principal agent in producing the act of respiration. Every time we breathe, this organ contracts, by which means it descends from its arch shape to that of a *plane*, or level surface, pushing down the stomach and liver with it. This enlarges the cavity of the chest, while the lungs, which rest upon its upper surface, follow it in its descent, allowing those organs to *expand*, and thereby causing a *vacuum* within them, which is immediately filled by air which rushes in through the trachea and bronchial tubes, filling up the air-cells. This is called *inspiration*. The diaphragm then immediately becomes relaxed (unless prevented by the *will*, as in "holding the breath"), and is pushed up by the organs beneath it, assuming its arched shape again, thus diminishing the size of the chest, which compresses the lungs and causes the air within them to be pressed out or expelled. This is termed *expiration*. An enlargement of the chest, therefore, is accompanied with *inspiration*, and a contraction of it with *expiration*. In the first, the diaphragm con-

tracts and becomes a *plane;* in the other, it relaxes and is pushed up by the abdominal viscera beneath it. What we call breathing, therefore, is performed entirely on the principle of the blacksmith's bellows, the operation of which is familiar to most persons. There are several of the muscles of the ribs, which assist in expanding and contracting the chest, and consequently in respiration.

## THE DIGESTIVE ORGANS.

The principal organs of digestion are the stomach, intestines, liver, and some smaller glands that will be noticed under the proper head. The mouth, teeth, pharynx, œsophagus, lacteals, thoracic duct, and pancreas, are also sometimes classed among the digestive organs. The mouth and teeth need no description. The pharynx is simply that cavity immediately back of the mouth and root of the tongue, commonly speaking, the *throat*. It is the common opening from which both the trachea and œsophagus commence. The œsophagus is a large membranous tube through which the food passes from the mouth or pharynx into the stomach. It is a muscular organ, lined with a mucous membrane, and passes down behind the trachea and heart, and terminates in the stomach. The lacteals, thoracic duct, and pancreas, will be described in their proper places.

**The Stomach.**—The stomach is a membranous sac or bag, into which the food passes when it is "swallowed," preparatory to the process of digestion. It is situated mainly in the left side of the upper part of the abdominal cavity, immediately below and in contact with the diaphragm, and extends from left to right. When moderately distended, the stomach of an adult is capable of holding about three pints. The left extremity of the stomach, which is much larger than the right, lies immediately under the lower ribs of the left side, while the right extremity extends only a little beyond the lower end of the sternum, or breast-bone, toward the right side, and is overlapped by the left lobe of the liver. It is separated from the small intestines by the *arch of the colon*, which passes immediately below it, from the right to the left side.

The stomach has two orifices or openings. The upper one, which is near the left extremity, is formed by the termination of the œsophagus, and is called the *cardiac* orifice. The other is the opening at the right extremity, which communicates with the intestines, or rather with the *duodenum*, and is called the *pyloric* orifice. This orifice has a kind of valve which is called the *pylorus*—a Greek word signifying *porter*, or *gate-keeper*—because it will not readily allow the food to pass out of the stomach unless properly digested.

The substance of the stomach consists of three coats. The outer,

which is called the *serous* or *peritoneal coat*, is a firm, strong, glossy membrane, which not only covers every part of this important organ, but extends to all the intestines, and also lines the cavity of the abdomen. The middle, or *muscular coat*, is composed of three layers of fleshy fibers—one layer of which extends longitudinally to the stomach, the second diagonally, and the third transversely. These fibers have the power of contraction and relaxation, for the purpose of producing the peculiar motions of the stomach in digestion. The inner, or *mucous coat*, is soft, velvety, and presents many folds, somewhat resembling honeycomb, and is of a pale pink color in health, but red when inflamed. Within the folds of this coat exist numerous little glands, which secrete what is called the *gastric juice*, (*i. e.*, the Pepsin and Hydrochloric Acid), a fluid which is essential to the process of digestion.

Blood-vessels and nerves are distributed to the stomach more plentifully than to any other organ. It also has a branch extended to it from the *great sympathetic nerve*, which causes it to sympathize so readily with other parts of the body when they are diseased. Let any important organ of the system become seriously affected, and the patient soon becomes "sick at the stomach."

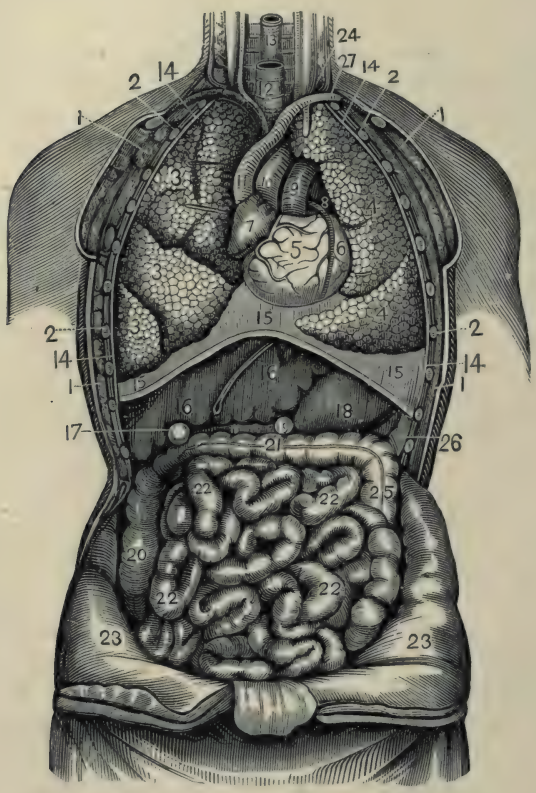
**The Intestines.**—The intestines are divided into two parts, the *small* and *large* intestines. The small intestine, in an adult, is about twenty-five to thirty feet in length, and the large one about five feet, being altogether some five or six times longer than the body. They are attached to the spine, or back-bone, by folds of the *peritoneum*, which is here called the *mesentery*, and which contains the *mesenteric glands*. It spreads out from the spine like a ruffle from the bosom of a shirt, having the intestines attached to its edge, and allows them to float somewhat loosely in the cavity of the abdomen.

The structure of the intestines is very similar to that of the stomach—having three coats, the same as that organ, the peritoneal, the muscular, and the mucous. The muscular coat, as in the stomach, consists of two sets of fibers, the *longitudinal* and the *circular*, which, by their alternate contraction and relaxation, produce what is called the *vermicular* (worm-like), or *peristaltic* motion of the bowels—which is for the purpose of moving their contents.

The first portion of the small intestines is the *duodenum*—so called because it is about twelve inches long. It is considerably larger in diameter than any other portion of the small intestines, and hence has been considered a sort of secondary stomach. It commences at the pylorus and passes obliquely backward to the under surface of the liver—then descends perpendicularly in front of the right kidney, and passes across under the stomach, behind the colon, and terminates in

the commencement of what is called the *jejunum*, which is the next subdivision of the small intestines. About four inches from the pylorus, the duodenum is perforated by the bihary and pancreatic *ducts* through which it receives the *bile* and *pancreatic juice*—fluids which are essential to the process of digestion.

FIG. 9.




FRONT VIEW OF ORGANS IN THE CHEST AND ABDOMEN.

FIG. 9.—The figures 3 and 4 represent the lobes of the right and left lungs; 5, the right ventricle of the heart; 6, the left ventricle; 7, the right auricle; 8, the left auricle; 9, the pulmonary artery; 10, the aorta; 11, the descending vena cava; 12, the trachea; 13, the œsophagus; 14, 14, the pleura, which lines the inside of the chest; 15 15, the diaphragm, which separates the lungs and heart from the stomach and liver; 16 16, the right and left lobes of the liver; 17, the gall bladder; 18, the stomach, partly overlapped by left lobe of the liver; 26, the spleen; the duodenum (19, 19,) is partly seen immediately under the left lobe of the liver; 20, the ascending colon; 21, the transverse colon; 25, the descending colon; 22, 22, 22, 22, the small intestines; 23, 23, the walls of the abdomen turned down. The kidneys lie immediately behind the stomach and liver. The muscles of the chest, and ends of the ribs cut off, are intended to be designated by figures 1 and 2, and the edge of the pleura is seen immediately inside of them next the lungs.

The *jejunum* and *ileum* constitute the remaining portion of the small intestines, and occupy the middle and lower part of the abdomen, and are encircled by the large intestine, which is also divided into three parts, the *cæcum*, the *colon*, and the *rectum*. The jejunum is ten to twelve feet in length, while the length of the ileum is sixteen to eighteen feet. The ileum terminates in the *cæcum*, or commencement of the large intestines.

The small intestines are the seat of an important function. It is in them—but principally in the duodenum—that what is called the *chyle*, is separated from the balance of the food, and is taken up by a set of little vessels called *absorbents*, or *lacteals*, and finally conveyed into the blood, for the nourishment of the body. These vessels are very numerous, and open their mouths upon the internal surface of the mucous membrane of the bowels. They will be more fully described hereafter.

The large intestines, as I have said, are divided into *cæcum*, *colon*, and *rectum*. The cæcum is only a sort of *pouch*, about three inches in length, which receives the lower end of the ileum. It is situated in the lower part of the abdomen, at the right side, just within the hip-bone, where it is tied down so as to be unable to get out of its place.

Projecting downward from the tip of the pouch of the cæcum, is a process about three inches long and about as big around as a lead pencil. It is, so far as we know, a useless appendage, and from its resemblance to an earthworm, is called the vermiform appendix. Its cavity connects with the cavity of the colon.

The *colon* commences at the cæcum, taking an upward course along the right side, toward the liver, where it turns and crosses from the right to the left side immediately below the stomach, and above the small intestines, constituting what is termed the *arch of the colon*. It then makes another turn, and descends along the left side of the abdominal cavity, terminating opposite the cæcum in a sort of double curve, called, from its resemblance to the letter S, the *sigmoid flexure*. The *rectum* is a continuation from the sigmoid flexure—is about eight inches long, and is the lower extremity of the intestines.

## THE GLANDULAR SYSTEM.

The glands are soft, fleshy, organized parts, having arteries, veins, nerves, and lymphatics, and are designed to separate some peculiar fluid from the blood, which is needed for some of the various operations of the system, or is to be rejected from the body. The process by which such fluids are separated from the blood, is called *secretion* or *excretion*.

The glands differ greatly, both as to size and shape, and in the character of the fluids they secrete. The largest gland in the body is the *liver*, which secretes the bile. The female breast is also a gland, designed for the secretion of milk. The kidneys also are glands.

**The Mucous Glands.**—These are a numerous class, are very small, consisting of little bags, formed by a peculiar membrane, and open by minute *ducts*, through which they discharge their contents. They are distributed upon the mucous membrane of the tongue, and that which lines the nose, windpipe, stomach, intestines, and bladder, furnishing a peculiar kind of fluid, called *mucus*, with which those parts are lubricated.

**The Sweat Glands** are the glands of the skin which excrete the perspiration, which is a waste product. They are very numerous.

**The Sebaceous Glands** are similar in structure to the mucous glands, but secrete an oily or fatty fluid, which forms the sebum, or oily substance which is poured out to protect the skin.

Of the **Salivary Glands,** there are three pairs—so called because they secrete the *saliva*. The principal of these are the *parotid glands*, situated one on each side, immediately back of the angle of the lower jaw, between that and the ear. They open by a duct upon the inner surface of the cheek, and furnish the principal amount of the saliva, which serves to moisten the food while undergoing the process of mastication or chewing. These glands are the seat of the *mumps*. The next pair are the *submaxillary*—seated under each angle of the jaw, and open by a duct into the mouth, on each side of what is called the *frenum*, or bridle of the tongue. The other pair are the *sublingual* glands, so called because situated under the tongue, near its back part. They have several ducts, by which their secretion is poured into the mouth.

**The Lymphatic Glands** appear to have no other office than that of receiving and transmitting the lymphatic vessels. They have no excretory ducts. They are very numerous throughout the system, the largest and most familiar to us being situated in the groins, the armpits, and along the sides of the neck. In the neck they often become swollen in Tuberculous affections, and form large Tumors—sometimes Ulcers. The glands of the armpit and groin are also liable to become diseased. We now come to the larger glands.

**The Liver.**—The liver is of a brown-red color, and in a healthy grown person weighs nearly four pounds. It is situated in the upper portion of the abdominal cavity, mainly in the right side, under the ribs, and is divided into two principal *lobes*, called the right and left. Its upper surface is convex, or rounded, and corresponds to the concavity of the diaphragm, to which it is attached by several ligaments. Its lower surface is hollow or concave, and is in connection with the stomach and duodenum. Its right lobe is principally thick and massy, but its left is thin, and spreads itself smoothly over the stomach.

In some diseases the liver becomes enlarged and *indurated*, or hard, and may be felt projecting below the ribs in the right front of the abdomen, and sometimes even on the left. It may, however, be pushed down by the

diaphragm so as to appear like an enlargement, in diseases of the chest, as Dropsy, when the liver itself is not diseased. It is altered materially in its texture by the processes of disease, becoming in some cases quite soft, and in others extremely hard and firm; and in some instances it acquires an enormous size, weighing from twenty to thirty pounds.

The liver is supplied with blood-vessels, nerves, and lymphatics, and has for its office the secretion of *bile*, which plays an important part in the process of digestion. This, however, is the least important of its functions, as it forms and stores up the glycogen, or sugar, from which the body obtains its heat and energy; it also forms the urea, the important waste product of the urine.

**The Gall Bladder,** belonging to the liver, and attached to the under side of its right lobe, is a membranous bag, or receptacle, large enough to contain one to two ounces of fluid, called the *gall-bladder*. This seems to serve as a kind of *reservoir* to receive the surplus bile from the liver, during the intervals of digestion.

The bile is secreted in the liver, and is conveyed by innumerable little tubes to what is called the *hepatic duct*, through which it passes on its way to the duodenum. From the gall bladder, or *cyst*, as it is sometimes called, proceeds also a duct, called the *cystic duct*, which unites with the hepatic duct between the liver and the duodenum, forming what is termed the *common duct*, which enters the duodenum about four or five inches from the pyloric orifice.

**The Kidneys.**—The kidneys (there are two) are of a dark red color, and resemble in shape a certain kind of bean known as the kidney bean. They are five to six inches long, and three to four inches wide, and are situated one on each side of the spine, in the back and upper part of the abdominal cavity, their upper half stretching across the two lower false ribs, and having their upper end in contact with the lower side of the diaphragm. It is owing to this fact—their contact with the diaphragm—that pain is felt in breathing when the kidneys are inflamed.

The office of the kidneys is to secrete the urine, which is collected in little tubes and poured into what is called the *pelvis* of the kidney—a cavity in its center—whence it passes out through the ducts or tubes called the *ureters*—one leading from each kidney, and is emptied into the bladder, which is situated in the bottom of the abdominal cavity and is the receptacle of the urine, where it is collected and retained until discharged from the body.

**The Spleen.**—The spleen is a soft spongy body, of a dark purple color, situated above and in front of the left kidney, and immediately to the left of the stomach, to which it is connected by small blood-vessels, and by the cellular membrane. It also has an attachment to

the lower edge of the diaphragm, near the spine. The spleen varies in size, but is generally about four inches long, three inches wide, and two inches thick. In the animal, this origin is generally called the *melt.*

The spleen sometimes becomes greatly enlarged, and may then be felt below the ribs to the left of the stomach. This often occurs in Typhoid Fevers, and protracted cases of Malaria. It is plentifully supplied with blood-vessels, but has no excretory duct, or outlet. The real use of the spleen is, as yet, not completely known, though, in all probability, it plays an important rôle in keeping the blood in a healthy condition.

**The Pancreas.**—The pancreas, which is known in the animal as the *sweet-bread*, is also a glandular body, of a pale red color, bearing a resemblance in shape to the tongue of a dog. It lies across the spine, immediately behind the stomach, and is in contact at its smaller extremity with the spleen. It has an excretory duct, which opens into the duodenum in connection with the hepatic duct from the liver. The office of the pancreas is to secrete what is called the *pancreatic juice*, a fluid somewhat similar in appearance to the saliva, and pour it into the duodenum, which is necessary to the process of digestion.

**The Absorbents.**—The absorbents are small, delicate, transparent vessels or tubes, which exist in every part of the body, and are denominated *lacteals* or *lymphatics*, according to the liquids which they contain.

The lacteals open on the inner surface of the intestines, and suck up or receive what is called the *chyle*, a milk-like fluid of which the blood is formed, and convey it to what is called the *thoracic duct.* In their course they perforate the middle and outer coats of the intestines, pass through the mesentery, and mesenteric glands, and terminate in this duct. The lacteals are an important set of vessels, for it is through their agency that the chyle or nutritious part of the food is separated from the refuse, or innutritious, and conveyed to the blood, to nurture and replenish the system.

The lymphatic vessels arise from every part of the body, and contain a whitish, transparent fluid denominated *lymph.* They form, together with the lacteals, what is called the *absorbent* or *lymphatic system.* They are extremely small and delicate, and cannot readily be seen with the naked eye. They pass through what are termed the *lymphatic glands*, and, in common with the lacteals, terminate in the thoracic duct.

The lymphatics take up fluids from different cavities and parts of the body, and carry them into the circulation, and it may therefore be readily supposed that they often prevent the occurrence of Dropsies. They may be compared to a greedy set of little animals, ready to lay hold on and carry off everything that comes in their way. They seem

to have no judgment as to what is good and healthy. but will absorb poisonous and deleterious substances, as well as the most nutritious. It is well known that Mercury rubbed on the skin in the form of ointment, may be absorbed, and produce Salivation as effectually as if taken internally. Croton Oil rubbed on the abdomen produces Purging, and Arsenic applied to Cancers, and Opium to Burns, have been absorbed in quantities sufficient to poison the patients. Blood effused under the skin, or nails, producing a dark appearance, is removed by these little vessels. Their office seems to be that of general usefulness, ready to take up and carry off any refuse material, dead matter, or unhealthy deposit, in any part of the system.

**Thoracic Duct.**—The thoracic duct, which may be regarded as the *trunk of the absorbents*, because it receives the absorbent vessels from almost every part of the body, including, of course, the lacteals, though small—being only about the size of a goose-quill in diameter—is a very important organ in the human organization. It commences at the lower end and back part of the abdominal cavity, and passes upward along the spine, by the side of the aorta, as high as the lower part of the neck, on the left side, or opposite the sixth cervical vertebra, where it makes a sudden turn downward and forward, and enters the *left subclavian vein*, just under the left clavicle, or collar-bone. It pours its fluid, the chyle, into the current of the venous blood, going direct to the heart.

## THE NERVOUS SYSTEM.

The nervous system consists of the brain, the spinal cord, and the nerves which go off with them.

**The Brain.**—The brain is the seat of the nervous sensation and of the intellect. It is contained within the skull, and is divided into two parts, called the *cerebrum*, or great brain, and the *cerebellum*, or little brain. The first is situated in front and above the level of the ears; the other below that level and in the back part of the cranium. The cerebrum is divided into two hemispheres, the right and left, by a cleft, or fissure, extending from the top down nearly or quite two-thirds of the way through it; and into this fissure a portion of the dura mater, or lining membrane of the skull, dips, serving as a partition between the hemispheres. The portion of membrane which thus dips into the fissure, is called *falx cerebri*, from its resemblance to a sickle. Upon its inferior, or lower surface, the cerebrum is divided into three *lobes*, the anterior or front, the middle, and the posterior or back lobe. The two hemispheres are connected by a dense layer of transverse fibers, called *corpus callosum*.

The brain is surrounded by three membranes, called the *dura mater*, the *arachnoid* membrane, and the *pia mater*. The dura mater—which means *strong mother*—lines the inner surface of the skull, and is, as its name indicates, a strong, dense membrane, having a bright, silvery appearance. Next, we have the *arachnoid*, which is the serous membrane of the brain. Though it is double, like all the serous membranes, it is very thin and delicate. The *pia mater* is a soft, vascular membrane, which immediately surrounds and invests the whole surface of the brain, and dips into its convolutions. It is copiously supplied with bloodvessels, which afford nourishment to the brain.

The substance of the brain does not, as is sometimes supposed, consist exclusively of a white, pulpy mass, but is more or less fibrous in its structure, and is of two different colors. Upon the upper and outside surface of the cerebrum (the membranes having been removed), the appearance is that of undulating windings, producing small rounded protuberances, called *convolutions*. Remove a portion of the upper part of the brain, horizontally, with a sharp knife, cutting through these convolutions, and we have presented a white substance in the center of each convolution, while the outside portion, to the thickness of a quarter to a half inch, is of an ashy gray appearance—and is called the *corticle* portion, while the white central portion is called the *medullary*. In the interior of the brain are several cavities, the two largest of which extend from the anterior to the posterior part of the brain, and are called the *lateral ventricles*. An effusion of serum, or water, is sometimes deposited in these cavities from the small blood-vessels of the membrane which lines them, producing the condition known as *hydrocephalus*.

The cerebellum is only about one-seventh as large as the cerebrum, and, like that, is composed of white and gray matter, but, unlike it also, the gray constitutes the larger portion. The white matter in the cerebellum is so arranged, that when it is cut through vertically, that is, up and down, it presents the appearance of a trunk and branches of a tree. Hence it is called *arbor vitæ*, or *tree of life*. The cerebellum is situated under the posterior lobe of the cerebrum, and is separated from it by an extension of the dura mater, which is here called the *tentorum*.

At the bottom of the brain is a sort of bulb, somewhat larger than a man's thumb, called the *medulla oblongata*. It is composed of three pairs of small bodies, called *corpus pyramidale*, *restiforme*, and *olivare*, all united together into one body. The medulla oblongata is simply the commencement of the spinal cord, or that portion of it *within the skull*.

**The Spinal Cord.**—The spinal column, which is composed of the vertebræ, or bones of the back, contains the spinal cord, the roots of the spinal nerves, and the membranes of the cord.

The spinal cord, or, as it is sometimes called, the spinal marrow, extends from the *medulla oblongata* through the opening or canal in the spinal column down to the second lumbar vertebra, which is just below the small of the back, where it terminates in a round point, or bundle of nerves. It is similar in structure to the brain, except that here the gray matter is on the inside and the white outside, just the reverse of the state of affairs in the brain; indeed, it is a continuation of the brain, and is also inclosed in a continuation of the three membranes of that organ. It is round, larger at the top than at the bottom, and has three enlargements; the uppermost of which is the *medulla oblongata*, the next where the nerves leave it which go to the upper extremities, and the third where the nerves of the lower extremities branch off.

The spinal cord is partially divided by an anterior and posterior fissure, into two lateral cords, which are only united by a thin layer of white medullary substance. These lateral cords are each divided by furrows into three distinct parts, or columns, called the *anterior*, the *lateral* and the *posterior* columns. The anterior are supposed to be the *motor* columns or origin of the nerves of motion; the posterior the columns of *sensation;* while the lateral or side columns are devoted to the function of both motion and sensation.

**The Nerves.**—The nerves are numerous long, round, white cords, of various sizes, which originate in the brain and the spinal cord, and are distributed in every direction to all parts of the body. They communicate freely with each other, thereby forming an extensive network, and become so numerous in their ultimate ramifications, that you can not prick the skin or flesh with the finest needle without wounding one or more of their branches, and producing pain. The *great sympathetic nerve*, however, instead of having but one center or origin, has many small centers, called *ganglia*, and also numerous communications with the brain and spinal cord.

The great attributes of the nervous system are the capacity of receiving impressions, the endowment of thought and feeling, and the power of putting the muscular machine into action; in other words, the nervous system possesses the attributes of sensation, thought, and motion. They can not act, however, independent of the brain. If a nerve, for instance, leading to any sensitive part, be cut, that part will immediately lose its sensibility, because the communication between it and the brain is destroyed. So also if the motor nerve leading to any part be cut, or so injured or compressed as to stop the

flow of the nervous stimulus, that part will lose the power of motion, for the same reason. Every sensation and motion, with the exception of the so-called reflex motions, such as are produced by striking the knee when it is crossed, of whatever nature, requires the intervention of the brain. Light may make an impression on the eye, sound on the ear, or some object on the nerves of feeling or touch, but this impression must first be conveyed to the brain, along the nerves, before sensation is effected. If the skull become fractured so as to compress the brain, all consciousness and feeling are lost until the compression is removed. Narcotics, such as Opium, are sometimes given for the purpose of producing a temporary relief of pain, but instead of removing the cause of the complaint, they only stupefy the brain, and render it incapable of receiving an impression from the nerves—hence, there can be no pain felt while the brain is in this condition.

The various organs of the body are supplied with nerves, which are essential to the proper performance of their functions. If the nerves which are distributed to the stomach were cut, the process of digestion would be arrested. The heart would cease to beat if its nerves were divided, for it is through these nerves that the heart is acted upon by the brain, and made to propel the vital fluid throughout the system. But for these mysterious cords, these electric wires, which connect all parts of the body with the brain, we could neither see, hear, taste, or exercise any of the senses; indeed, we could not exist.

The nerves are divided into the *sensible* and *insensible;* the *voluntary* and *involuntary*. The first convey sensibility to the parts to which they are distributed, as the nerves of the skin; the second, like the brain itself, are destitute of sensibility, and exhibit no pain when wounded. The nerves of sight and hearing are of this class. They are capable of being acted upon, however, by *light* and *sound*.

The *voluntary nerves* are those which control the voluntary action of the muscles, as those of the leg and arm. Hence, they are the nerves of voluntary motion, and are governed by the will. The *involuntary nerves* are such as are not under the control of the will, but that act independent of it, as the nerves of the heart, the stomach, etc.

**Nerves of the Brain.**—There are twelve pair of nerves which originate in the brain. They nearly all pass out through openings for that purpose in the base of the skull. Their names and manner of distribution are as follows:

First pair, the *olfactory* nerve, or nerve of smell. It ramifies upon the membrane of the nose.

Second pair, the *optic* nerve, or nerve of sight. It expands on the retina of the eye.

Third pair, called *motores oculorum*, goes to the muscles of the eye.

Fourth pair, *patheticus*, goes also to the muscles which turn the eye upward, and receive their name from the appearance they produce.

Fifth pair, called *trifacial*, because of its dividing into three branches before leaving the skull, all of which go to the face, jaws, mouth, teeth, nose, and forehead.

Sixth pair, called *abducentes*, the smallest of the nerves of th brain, and is apportioned to a single muscle of the eye.

Seventh pair, the *facial* nerve (*nervus facialis*), is distributed over the muscles of the face and the external ear, and also sends some small branches to the internal organs of the ear.

Eighth pair, the nerve of *hearing* (*nervus auditorius* or *acusticus*). A sensitive nerve, which is susceptible of sound only.

Ninth pair, called *glosso-pharyngeal*, goes to the mucous membrane of the tongue, throat, and to the glands of the mouth.

Tenth pair, the *pneumogastric;* this pair sends branches to the heart, throat, lungs, spleen, pancreas, liver, stomach, and intestines.

Eleventh pair, called the *hypo-glossal* nerve, goes to the muscles of the tongue, and is its motor nerve.

Twelfth pair, called *spinal accessory*, connects, on emerging from the *foramen jugulare* (jugular opening) with the branches of the ninth and tenth pair, which lead to the pharynx and distributes itself upon the muscles about the neck. It may support breathing.

**Nerves of the Spine.**—The nerves that originate in the spinal cord are arranged in thirty-one pairs, each nerve arising by two roots, one from the anterior portion of the cord—which is the *motor* root—and the other the *sensitive* root, from the posterior side of the cord. There is what is called a *ganglion*, that is, a small *bulb* or *enlargement*, found on each posterior root, soon after it leaves the spinal cord. Immediately beyond this ganglion the two roots unite and constitute a spinal nerve, which passes through the opening between the vertebræ on the sides of the spinal column, and thence divide and subdivide, till their minute branches are lost upon the tissues of the different organs to which they are distributed.

The first eight pairs of spinal nerves are called the *cervical nerves*, because they originate within the cervical vertebræ; the next twelve pairs, for a similar reason, are denominated *dorsal nerves;* the next five, *lumbar nerves*, and the remaining six, *sacral nerves*.

The four lower cervical and the upper dorsal pass into each other, and then separate to unite again, thus forming what is called the *brachial plexus*. Six nerves proceed from this plexus, which ramify the muscles and skin of the upper extremities.

The last dorsal and the five lumbar nerves form a similar plexus,

called the *lumbar plexus*. From this plexus six nerves also go out, which ramify upon the muscles and skin of the lower extremities.

The four upper sacral unite and form the *sacral plexus*, which sends out five nerves to the muscles and skin of the hips, and the lower extremities.

**The Great Sympathetic Nerve.**—This nerve is so called from its numerous connections with different parts of the body. It arises from a branch of the sixth, and one from the fifth pair of cerebral or brain-nerves, which unite into one trunk and descend along the spine to the lower end of the sacrum. It communicates by branches with each of the spinal nerves, and with several of the cerebral, and also sends off branches to the different organs contained in the chest and abdomen. Below the vertebræ of the neck it has a ganglion for each intervertebral space, which are supposed to form nervous centers, giving off branches in different directions.

The branches of this nerve accompany the arteries that supply the different organs of the abdomen, and form *plexuses* around them, which take the name of the particular artery with which they are connected—and thus we have the *mesenteric* plexus, the *hepatic* plexus, the *splenic* plexus, etc. All the internal organs of the head, neck, and trunk, are supplied with branches from it. The sympathetic nerve is supposed to be the *nerve of organic life*, and to preside over nutrition, secretion, the action of the heart, and circulation of the blood, as well as to maintain a communication between different parts of the body, and to be the connecting link between the brain and the abdominal viscera.

# PHYSIOLOGY AND THE LAWS OF HEALTH.

## WASTE AND SUPPLY OF THE BODY.

THE human body is constantly undergoing change. The living machine is in continual operation from birth till death; this operation produces friction, attrition and wearing away; particles become decayed and useless, and are cast off, to be replaced by new ones. Whether asleep or awake, sick or well, this wearing out and change of particles goes on. In the expressive language of Dr. Watts, the poet and philosopher—

"The moment we begin to live,
We all begin to die."

This is strictly true, applied physiologically to the particles which compose our bodies. But it is also true, that while we are dying we are also reviving; that while our bodies are constantly wearing out and decaying by particles, they are as constantly being regenerated and renewed by particles. And this change, this perishing and renewing of particles, goes on in every part of the body—in every bone, muscle and tissue, so that in the course of time, it must be evident, our bodies become entirely renewed. It has been said that this renewal of the entire body takes place, or is completed, once in every seven years. But there is no certainty in this. The probability is, that in some cases, as in active, healthy children, it is effected in much less time; while in others, as the aged, or the lazy, corpulent, inactive adult, it may require twice or three times seven years. But whether the process requires seven years, or seven times seven, the constant decay and renewal of the body is a well-established doctrine of Physiology.

Before proceeding to the subject of Nutrition, let us first see what becomes of these worn-out and useless particles, for it is very proper that every one should understand this. The body does not decay and wear away upon the outside merely. If it did, the decayed particles would rub off and be lost—a very simple process. But, as I have said, this decay of particles goes on in every part and tissue of the body, internally as well as externally. Now it is plain, that unless there was some plan provided, some wise arrangement for the removal of these useless particles from the body, the most serious consequences might ensue. They are not only of no further service,

but if retained, must act as foreign matter, and produce irritation, fever, inflammation, and perhaps would putrefy and poison the whole system. But the necessary provision has been made. All over the body, and all through it, there is distributed a set of little vessels, with their mouths opening on the internal surfaces of all the cavities, tubes, and membranes, and which are continually sucking up and carrying off every dead particle and all foreign matter they can lay hold of. These little vessels are called ABSORBENTS, or Lymphatics, and have been described in the proper place. The greater portion of them open into the bloodvessels, and consequently pour their contents of decayed and refuse matter into the blood. From the blood a portion of it is separated by the kidneys, and passes directly out of the body. Some is thrown into the bowels, and passes out in that way. But by far the largest proportion is eliminated from the body through the pores of the skin, along with the perspiration. A free and healthy operation, therefore, of the absorbent system, is very essential to the health of our bodies. If the kidneys fail to secrete their share of the waste material, it is retained in the blood, and is carried round in the circulation and distributed to all parts of the system, to become the source of irritation and poison, and may show itself in various ways and ultimately lead to death. But, above all, it is important that the outlet through the skin, through which the greater portion of these decayed particles have to pass, should be constantly maintained in a proper and healthy condition. This part of the subject, however, comes under the head of "Perspiration and Exhalation," and will be noticed in its proper place.

Having seen that our bodies are constantly wearing out, and the manner in which the dead particles are removed, we come directly to the subject of Nutrition, or Supply; for it must be evident, that if we are continually losing particles of our bodies, there must be some way to supply new particles to take their place, or we should, in the course of time, become "mere skeletons," or entirely wasted away. In order to maintain a proper balance between supply and waste, and have all things go on in a healthy condition, we must be as constantly receiving new particles from some source or other, as we are losing old ones. And in childhood and youth, while the body is growing, it is evident that the supply must be greater than the loss. Whence comes this supply?

## NUTRITION.

Nutrition is the renewal of the materials of which the different parts of the body are composed. The circulation, digestion, and

respiration, are the three great agents in this vital process. The blood, however, is the immediate source of nutrition. Every thing of a nutrient character, whether for bone, muscle, nerve, ligament, or other tissue, must first be converted into blood, or incorporated with that fluid, before it can be applied to its intended uses; for the nutritive process is simply a kind of secretion, by which particles of matter are separated from the blood, and conveyed with wonderful accuracy to the particular textures for which they are suited. The nutrient vessels which separate these particles of new material from the blood, may be said to antagonize with those of absorption: while the one class, with most beautiful precision, are constructing and renovating the animal frame, the other are as diligently engaged in pulling down and removing the old material. This process of nutrition, or separating new material from the blood and applying it to the appropriate textures, as bone, muscle, ligament, etc., is effected by a set of minute vessels, the smallest in the human body—so small that they can only be detected through the aid of a powerful microscope. They are the smallest of the capillaries.

"As the blood goes the round of the circulation, the nutrient capillary vessels select and secrete those parts which are similar to the nature of the structure, and the other portions pass on; so that every tissue imbibes and converts to its own use the very principles which it requires for its growth; or, in other words, as the vital current approaches each organ, the particles appropriate to it feel its attractive force—obey it—quit the stream—mingle with the substance of its tissue—and are changed into its own true and proper nature." And thus bone attracts from the blood, through its capillaries, the material suitable to make bone, and muscle that which is suitable to make muscle, and so on throughout the different tissues of the body.

Of course, all nutrition is derived ultimately from the food we eat, and consequently involves the process of digestion; but the immediate, direct agent for making, developing, sustaining and renewing the body, is the blood. This being the fact, we speak first of that fluid, and its circulation; after which it will be necessary to inquire where and how the blood itself is furnished with the elements of nutrition—which will lead us a step further back, to the subject of Digestion and assimilation of food, thus reversing the order usually pursued by writers on this subject.

**The Blood.**—The blood is that fluid which circulates in the heart, arteries, capillaries and veins. In the arteries it is of a bright red or light vermillion hue, while in the veins (except those which convey it from the lungs to the heart) it is of a dark red or purple color. The quantity of blood in the body of an adult person is estimated to be

about twenty-five to thirty pounds. Its temperature, in a state of health, is about 100 degrees, Fahrenheit. In some diseases, as Scarlet, and other Fevers, it rises five to ten degrees above this; while in some others, as the Cholera, it falls twenty to thirty degrees below it.

The blood is the most important fluid in the body, for it is not only the sole material from which every part of the body is made, but it furnishes the various secretions, as bile, pancreatic juice, saliva, etc., and is the source of animal heat, diffusing warmth throughout the system, and maintaining the temperature of the body at a uniform standard, amid the various changes of heat and cold.

The blood contains an immense number of little red globules, which can only be distinguished through a microscope, and which contain, its coloring matter. In the male there are five million, in the female four and a half million, of these red corpuscles in a cubic millimeter (smaller than a small drop) of blood. There are also the white corpuscles, less numerous, but of great importance to the body. When drawn from the body and allowed to rest, it separates into two parts, one of which is solid, or of a jelly-like consistence, and is called the *clot*. This part contains the red globules. The other is a watery, transparent fluid, of a slightly yellowish hue, and is called the *serum*. The serum is said to constitute fully one-fifth of the blood, in a healthy state of the body. In diseases, generally, the proportion of serum is increased; consequently, there is a diminution of the healthy and nutritive properties of the blood, as the serum is but its watery portion, and probably serves only as a solvent for foreign substances, and as a medium in which to suspend the red globules.

Upon washing the clot, the coloring matter disappears, and a whitish substance remains, called *fibrine*, which is the principal material of which the muscles are formed, and probably other portions of the body.

So important is the blood to health, and even the existence of our bodies, that it was said by the ancients that "the blood of the body is the life thereof." Whether this be true wholly, or only in part, it is very certain that we cannot live, even for one short hour, without this wonderful fluid.

**Circulation of the Blood.**—Extraordinary as it may seem, it is only a little over two hundred and thirty years since the circulation of the blood was discovered. This discovery, as the reader is probably aware, was made by William Harvey, an eminent English physician. So strong is the force of prejudice, and so difficult is it to discard preconceived opinions, that instead of receiving the meed of praise from his professional brethren for this brilliant and important discovery, he was violently persecuted by them—so much, even, that it is said he was obliged to retire to an obscure corner of London, and finally lost nearly the whole of his practice. In his history of England, Hume remarks, that no physician in Europe, who was over forty years of age

at the time, ever adopted Harvey's doctrine of the circulation. Yet, where is the physician now, or person with any pretensions to science, who doubts it? No doctrine in Physiology is better established or more generally understood, than that of the circulation of the blood.

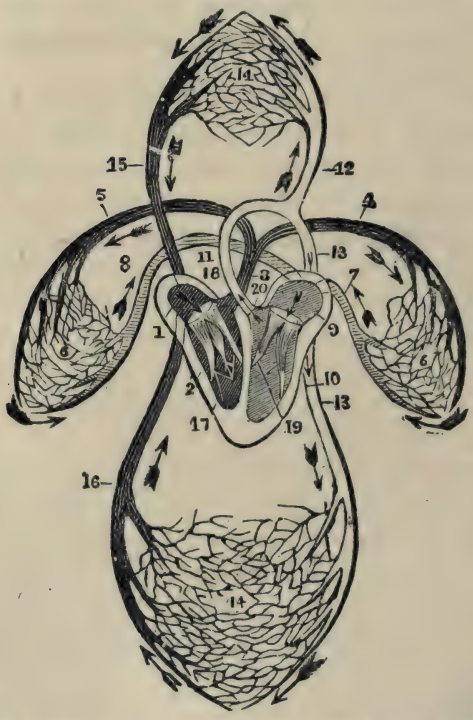
The heart, as has been said, is properly a double organ, having two sides or compartments, in each of which there are two cavities, one called the auricle and the other the ventricle. By the muscular contraction and relaxation of the heart, producing alternate diminution and enlargement of these cavities, the blood is forced first from the auricles into the ventricles, and then from the ventricles into the arteries. The dilatation of the ventricles is called the *diastole* of the heart, and their contraction its *systole.*

In describing the circulation of the blood, the right auricle of the heart may be regarded as the proper starting point, as it is the cavity which receives from the veins the blood from all parts of the body, after it has gone the round of the circulation. It is with this auricle that the two great veins (upper and lower vena cava) connect, and into this they discharge their contents of venous blood, which is now of a dark red, almost black color, and is unfit for the nourishment and growth of the body until it has been renewed and purified in the great laboratory of the lungs. From here the blood is forced by the contraction of the auricle through an opening into the *right ventricle*, which is situated immediately below it. The right ventricle in its turn contracts and forces the blood into the *pulmonary artery*, and through it and its branches *to the lungs.* Inside of this ventricle are what are called the *tricuspid valves*, which close upon the entrance from the auricle and thus prevent the blood from regurgitating, or returning to the auricle when the ventricle contracts. There is a similar provision in the pulmonary artery, called the *semi-lunar valves*, which prevent the blood from returning to the ventricles when it dilates or relaxes.

In the lungs the blood undergoes its great change. It here becomes what may be termed *oxygenized* and *decarbonized;* that is, charged with oxygen, and freed from its carbon, and thereby changed from a dark purple to a bright red color, and rendered fit for re-circulation, and all the purposes of nutrition. This change is effected by the action of the atmospheric air, taken into the lungs in breathing. The pulmonary arteries divide and subdivide into innumerable branches, which distribute themselves to all parts of the lungs, and finally lose themselves in the minute *capillaries.* These little vessels surround the air-cells of the lungs, forming a kind of net-work around them; so that when air is taken into the lungs, and those cells are filled with it, a chemical action takes place between the blood and the air. The cells

and the capillaries are so very thin, that oxygen escapes through them from the air, and unites with the iron (called hæmoglobin) of the red corpuscles forming oxyhæmoglobin; while at the same time the carbon which the blood has taken up in its round through the body, and which gives to it its dark color, is either burnt up by the oxygen, or escapes through the air-cells and passes out along with the breath when ejected from the lungs. Thus the blood becomes purified and ready for use again. It is now of a bright red color.

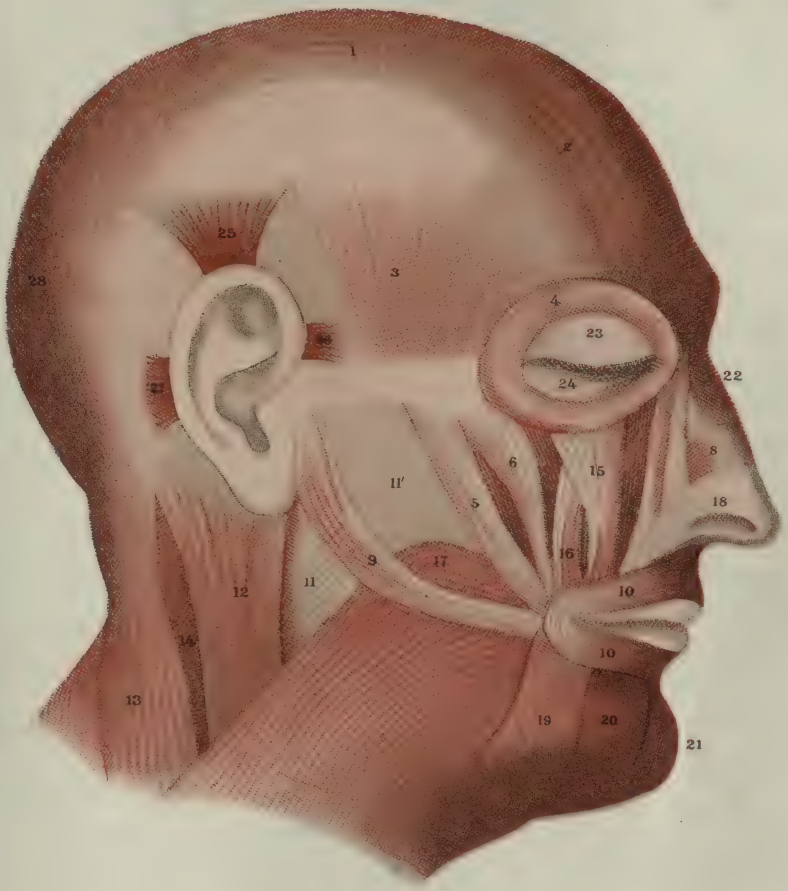
Fig. 10.




AN IDEAL VIEW OF THE CIRCULATION IN THE LUNGS AND SYSTEM.

1, Right auricle; 2, right ventricle; 3, pulmonary artery; 4, 5, left and right branches, going to the lungs; 6, 6, the capillaries of the lungs; 7, 8, pulmonary veins, returning blood to left auricle of the heart; 9, left auricle; 19, left ventricle; 11, 20, aorta; 12, 13, 13, branches of aorta, ascending and descending; 14, 14, the capillaries, into which the arteries terminate, and from which the veins rise; 15, 16, descending and ascending vena cava. ☞ The arrows show the course of the blood.

From the capillaries of the air-cells the blood now passes into the minute extremities of the veins, which unite with them the same as the arteries, and thence into the two *pulmonary veins* which convey it direct to the *left auricle* of the heart. This auricle then contracts, and forces the blood down into the *left ventricle.* In this ventricle are what




## External muscles of the head.

1. The great muscle of the scalp.
2. The frontal muscle.
3. Temporal muscles.
4. Muscle of the eye-brows.
5. Great muscle of the cheek-bone.
6. Small muscle of the cheek-bone.
7. Muscle for elevating the upper lip and wing of the nostril.
8. Muscle for compressing the nostrils.
9. Muscle of the cheek or trumpeter's muscle.
10. Muscles for closing the mouth.
11. The masticatory muscle.
12. Muscle for the nodding movements of the head.
13. The trapezius muscle.
14. The splenius capitis.
15. Special muscle for elevating the upper lip.
16. Muscle for elevating the corners of the mouth.
17. The risorial muscle and the muscular membrane of the neck.
18. Muscle for depressing the nose.
19. Muscle for depressing the corners of the mouth.
20. Muscle for depressing the lower lip.
21. Muscle for elevating the skin of the chin.
22. Long muscle of the nose.
23. Upper eye-lid.
24. Lower eye-lid.
25, 26, 27. Muscles for moving the ear.
28. The occipital muscle.

are called the *mitral valves*, which prevent the blood from returning to the auricle. The left ventricle then contracts and forces the blood into the *great aorta*, through which, and its numerous branches and their subdivisions, it is distributed to every part of the body. There is also a valve within the mouth of the aorta, the *semi-lunar*, which prevents the blood from reflowing into the ventricle. The difference between the functions of the pulmonary artery and the aorta is, the former proceeds from the *right* ventricle and distributes only *impure* blood to the lungs, to be purified; the other connects with the *left* ventricle, and distributes *pure* blood to all parts of the body, the lungs included.

The aorta sends off branches to the head, neck, viscera, and upper and lower extremities, which divide and subdivide into innumerable smaller branches, which ramify upon the bones, muscles, skin, and every part of the body, until they are finally lost in the little capillary vessels, the same as the extremities of the pulmonary arteries. Every tissue of the body is full of these capillaries, which form the connecting link between the arteries and the veins. It is while the blood is passing through these, that its nutritive properties are taken up and assimilated to the different parts of the body, by a still smaller set of vessels, which open into these, called the *nutritive capillaries*. In this way the blood is made to nourish, sustain, and replenish the system. In this way the growth of the body is effected, and all the new particles obtained to supply the continual waste that is going on in the various tissues.

Having parted with its nutritive properties, and also lost much of its oxygen, the blood is ready to be sent back to the heart, and thence to the lungs, to be again purified and renewed. It has again become quite dark, from the loss of its oxygen, and the presence of carbon. From the capillaries, therefore, it passes into the extremities of the veins, and thence is collected from all parts into larger veins, all of which terminate at last in the two large trunks, the ascending and descending vena cava, from which it is poured into the right auricle of the heart, and is ready to proceed on the rounds we have just described. This is THE CIRCULATION OF THE BLOOD.

The motive power that forces the blood through the arteries is the contraction of the heart, or of its ventricles. This force or influence is felt to the very extremities of the arteries; for what we call the *pulse*, is nothing more than the motion or wave in the artery—the *impulse* caused by the beating or contracting of the heart. The ventricles of the heart contract, or the pulse beats, about seventy times every minute, in an adult; in children much oftener, and in old

age less than that. At every stroke of the heart it is estimated that it forces two ounces of blood into the aorta; and if it contracts at the rate of seventy times a minute, it will require only about three minutes at most for all the blood in the body to pass through the heart, and, consequently, to go the rounds of the circulation.

The influence which returns the blood to the heart, through the veins, is the same force acting through the capillaries; there is also more or less of a sucking action on the part of the heart which draws the blood from the two big veins.

As the blood is the medium through which every part of the body receives its nutriment, and as this nutriment is extracted from the blood while it is passing through the minute vessels at the extremities of the arteries, it is evident that in order to have health and strength of the body, there should be a full and free distribution of this fluid to all the parts. To secure this, a proper degree of daily exercise i necessary. The skin should be kept clean, and sufficiently warm, sc that the capillaries next the surface do not become closed or congested by chill or cold, or the blood may be concentrated upon internal parts, and debility or disease be the result. Next to having a supply of good, rich and healthy blood, it is important that its circulation be equal; that is, properly and equally distributed to all parts. In case of unequal circulation, the extremities cold, particularly the feet—skin pale or sallow, with other symptoms usual in such cases—rely on ablutions of the body, warm and cold baths, friction upon the surface, and plenty of out-door exercise, to restore the equilibrium, and bring back the health. They will be found better than all the drugs and patent medicines in the country.

## DIGESTION.

Although the blood, as we have seen, is the immediate agent of nutrition, by which the body in all its parts is sustained and developed, yet the blood itself, with all its elements of nutrition, is derived from the food we eat. This change of foreign substances, what we eat and drink, into the material of the body, is one of the most extraordinary phenomena in Nature, and is eminently worthy of our study, both as a matter of interest and of utility. When we recollect how various are the articles of food, and how dissimilar most of them are to the blood, it seems scarcely possible that such a change could occur. Yet it does occur daily in our own bodies, although we are unconscious of it. Though we are not acquainted with the precise means

by which Nature performs this function, or indeed any function, we can point out the organs employed, and the different changes the food undergoes in each one. Commencing, then, with the food on the table, we will follow it from the time it is received into the mouth, noting all the processes and changes through which it passes, until it is finally converted into blood, and building material for the body.

The first stage of the process of digestion is that of *mastication*, which consists in chewing or grinding the food, and thus preparing it for entering the stomach The act of mastication is so well understood that it needs no description, more than to say that it is materially aided by a fluid called the *saliva*, which is secreted by certain organs heretofore described, called salivary glands. As soon as food is taken into the mouth, and the act of chewing commences—particularly if it be dry food—these glands begin to secrete and pour into the mouth, through their little ducts, this fluid, which serves to moisten the food and help to reduce it to a condition suitable for entering the stomach. The saliva, it is thought, also aids in the process of digestion before the food passes into the stomach.

The next act after mastication is that of *deglutition*, or swallowing, which is also too well understood to need special description. It is proper, however, to remark here, that the food should be well masticated and thoroughly moistened with the saliva before it is swallowed. The habit of taking fluids, as tea, coffee, or even water, along with our food, is by no means a good one. The less fluids of any kind we take at meals, the better. One reason of this is, that fluids taken into the mouth along with food, *prevent the flow of the saliva.* The saliva is a provision of Nature for moistening the food; but if the mouth is already full of water, or any other foreign liquid, the saliva will not enter. If drinks must be taken at meals, it should be done when there is no food in the mouth—after it has been masticated and swallowed; or, which is still better, after the meal has been finished. There are other objections, and serious ones, to the use of fluids at our meals, which will be mentioned as we proceed.

**Chymification.**—Soon after the food enters the stomach, which it does through a pipe or tube called the *œsophagus*, it undergoes the first part of the real process of digestion, by being converted into a homogeneous, semi-fluid mass of grayish pulp, called *chyme.* The previous processes of mastication and deglutition, are but preparatory ones. The stomach, as has been said, is a kind of pouch or bag, with strong muscular walls, which, by their alternate contraction and relaxation, keep the masticated food in constant motion—churning it from side to side, and thus breaking it still finer and finer, and mixing it more intimately. The grand agent, however, in converting the

food into chyme, is a peculiar fluid known as the *gastric juice*, which is secreted from the inner walls, or lining membrane, of the stomach. This fluid has a remarkably solvent power, and will act upon ordinary articles of food with the greatest readiness. It is so powerful, even out of the body, that a portion put into a bottle, for instance, will dissolve or digest a piece of meat or other food suspended in it, almost the same as though it were in the stomach. The gastric juice differs in its nature according to the character of the food upon which the animal subsists. Thus, in herbivorous animals, that live altogether upon vegetables, as the sheep, or the ox, it can not dissolve flesh, while in exclusively carnivorous animals, it can not dissolve vegetables; but in man, as in other omnivorous animals, it acts equally upon both animal and vegetable food. A somewhat remarkable peculiarity of this fluid, however, is that it can not act upon any substance possessing life or vitality; hence, it does not injure the coats of the stomach and intestines, with which it comes in contact; and hence, also, we often find that worms live unhurt in the stomach and bowels. But as soon as they die, they are dissolved by it, or digested. It will also soon destroy the coats of the stomach after death. The natural appearance of the gastric juice is that of a limpid, colorless fluid, slightly viscid, and somewhat acid to the taste.

When the food has become properly digested, or converted into chyme, it passes from the stomach, through the *pyloric orifice*, into the *duodenum*, where it undergoes the process of what is termed *chylification*. A peculiarity in this pyloric orifice, or *pylorus*, is that it will not allow the food to pass it without first being properly dissolved by the gastric juice, or *chymified*. All undigested masses, pieces of beef, or whatever else it may be, will be refused exit until they are reduced to the proper consistence. Hence the name *pylorus*, which means *gate-keeper*.

**Chylification.**—This consists in the separation of the nutritious portion of the food from the innutritious or refuse. In the duodenum the food or chyme, as it now is, meets with two other fluids, the *bile* and the *pancreatic juice*. The bile is a dark green, bitter, and alkaline fluid, while the pancreatic juice somewhat resembles the saliva. These fluids are conveyed into the duodenum through small tubes or ducts coming from the organs which secrete them—the liver and the pancreas—as has been fully explained in the anatomy of these organs.

Immediately after the chyme becomes mixed with these fluids, it begins to separate into two distinct portions, one of which is the chyle, or nutritious portion, and the other the refuse portion, which passes off by the bowels. The chyle is a white, milk-like fluid It

resembles blood, however, in nearly every particular except its color; and hence has been called *white blood.* Indeed, it is blood, and only waits the coloring process, to be ready for use in the processes of circulation and nutrition.

**Absorption of the Chyle.**—The refuse or innutritious portion of the food, as I have said, passes off by the bowels; but the chyle is absorbed or taken up by an immense number of little vessels or tubes, which open upon the inner surface of the duodenum and small intestines, called *lacteals*, and is by them carried and emptied into the *thoracic duct*, a long tube about the size of a goose-quill, or hardly so large, which runs up along the spine, behind the stomach and heart, and empties into the left *subclavian vein*, at a point under the left clavicle, near the neck. Through this the chyle passes, and is thus mixed with the *venous blood*, and goes with it direct to the heart, and thence to the lungs. From the lungs it passes back again to the heart, through the pulmonary veins, and is distributed along with the general mass of blood to all parts of the body, through the arteries; thus nourishing and invigorating the system, and supplying the waste that is continually taking place, as well as furnishing additional material for increasing the size of the body during its growth. All the nourishment and strength we receive from our food is obtained in this manner; and all our bones, muscles, and every part of our bodies, are made in this way; the food we eat making the blood, and the blood in turn making the more solid parts. How wonderful! When we reflect that this piece of bread, or this potato, which we are about to eat, *to satisfy our hunger*, will, in a few hours, be converted into red blood, flowing through our veins and arteries, and that probably before we rise in the morning from our slumbers and our dreams, it will constitute a part of the living flesh of our body—the change will appear little less than a miracle.

**Additional Observations on Digestion.**—The absorption of the chyle takes place, principally from the duodenum, and first portion of the small intestines, called the *jejunum;* less from the second portion, the *ileum;* and still less, if indeed any, from the large intestines. The lacteals commence upon the inner surface of the intestines, and as has been said in describing these vessels, pass through certain small bodies, called the *mesenteric glands*, which are supposed to exert some influence upon the chyle as it passes through them. The lacteals all terminate in the lower end of the thoracic duct, where there is a sort of enlargement of that vessel, called the *receptacle of the chyle.*

The time required for digestion to take place—that is, to change food into chyme, ready to pass out of the stomach into the duodenum—

varies according to the character of that food, and the tenderness of the fiber on which the gastric juice is required to act, as also upon the proper or improper mastication of it before entering the stomach. It has been found by experiment that rice, sago, tripe, raw eggs, soused pig's feet, broiled venison steak, and a few other articles, require but about an hour to an hour and a half; while some meats, as broiled beef steak, broiled fresh pork, and mutton, require about three hours, and veal, fried beef, salt fish, salt pork, most domestic fowls, as chickens and ducks, nearly or quite four hours. Turnips, potatoes, beets, carrots, wheat and corn bread, green corn, and apple dumplings require about three hours, and melted butter and old cheese near four hours. Boiled cabbage, four and a half hours, and roasted fresh pork five hours. Radishes, pickles, and raw onions, from six to twelve hours, and sometimes longer. Oily substances, as beef and mutton suet, the greasy portion of soups, and grease generally, are digested with great difficulty.

The medium time for the digestion of a meal, under ordinary circumstances, is about three hours and a half. If we drink freely at the time, especially of ice-water, it will require four hours, or longer.

Moderate exercise after a meal increases the temperature of the stomach, and assists the digestion. It is best, however, always to rest half an hour immediately after eating a hearty meal.

**On Drinking at Meals, and Liquid Aliments.**—Wine, spirits, water, tea, coffee, and other fluids, are not affected by the gastric juice, and consequently not digested. *All fluids must pass from the stomach—mostly by absorption—before digestion commences.* Hence, here is another important reason why fluids should not be taken along with our food, or at least should be taken sparingly. They only retard digestion. Soups, such as we find at the hotels and eating-houses, usually contain stimulating condiments, which excite the mucous membrane of the stomach and produce an artificial and often greatly increased appetite, thereby causing us to eat too much. The stomach should never be excited by artificial stimulants, as pepper, mustard, and the like, for the purpose of increasing the appetite. Nature is the best stimulant, and the best judge as to when we should eat and when we should not.

It is no objection to the truth of this doctrine, to say that milk is healthy and nutritious, and that physicians recommend soups and broths for the sick and the convalescing. In the first place, fully eighty per cent. of the best milk is water. This must be absorbed and removed from the stomach. The remainder, the nutritious portion, is then formed into a kind of *curd*, and is no more a liquid, but a semi-solid. The gastric juice can now act

upon it, and change it into chyme. Milk is an ideal food for all ages, provided it is pure and fresh.

As to the utility of broths and gruels for the invalid, this can only be justified upon the following principle: Usually in such cases, particularly in persons recovering from a spell of sickness, as Fever, or other acute diseases, there is a morbid, craving appetite, sometimes almost furious, and generally demanding things that are entirely improper, as pork, cabbage, cheese, pickles, mince-pie, and the like. In order to quiet the appetite as well as we may with safety to the patient, and at the same time furnish the raging stomach something to work upon, to busy itself with, and, as it were, "keep it out of mischief" for a few hours, we give it gruel, or weak soup, which, after all, affords it but little nutriment, or not enough to do any harm. The stomach, in such cases, needs something to fill it up, to distend it somewhat; but if we should do this with strong food, we should at once endanger the patient's health, if not his life. Upon this hypothesis only, can the usual practice of giving soups to the sick be justified.

Another reason why drinks should not be taken at meals is, that, as a general thing, they contain no nutriment, and hence do not help to satisfy the appetite, although they do help to fill and distend the stomach. We usually eat as much food, when we drink a pint of water or coffee along with it, as we would were we not to drink any thing; and if wine, or ale, or stimulating drinks are used, we will be apt to eat more, for they excite the appetite. The consequence is, that, with our *eating* and *drinking*, the stomach will be so much *distended* as to be uncomfortable, and if the habit be persisted in, it will certainly lead to permanent disease of that organ. More Dyspepsias and ruined stomachs are produced in this way than people are aware of.

Avoid fluids as much as possible *when you eat.* Remember, that like the saliva when fluid is in the mouth, the gastric juice will not flow when the stomach is filled with liquids; or if it does, it will be so diluted by them that it can not act upon the food. I have known some of the most inveterate cases of Dyspepsia cured entirely by abstaining from the use of drinks of all kinds at meals. But particularly at dinners should we dispense with drinking, for it is then that we usually eat the most hearty. If drinking can not be entirely dispensed with at breakfast and supper, by all means, leave it off at dinner —the principal meal—and for at least three hours after, *if you are at all dyspeptic.* Cold water, especially ice-water, is bad at meal time. It

chills the stomach, and retards or puts back absorption, as well as digestion, at least half an hour; and absorption of the fluids, you know, must take place before digestion commences. I can hardly say that ice-water is healthy at any time. It should be used with caution—particularly by all who are not in the habit of using it daily. Ice-water is said to be the cause above all other causes of dyspepsia among Americans.

**On the Quantity of Food.**—No very definite or satisfactory rule can be prescribed, as to the exact quantity of food necessary for the system. It is generally admitted by intelligent men, that we eat too much—nearly twice as much as Nature, for all practical purposes, requires. Philosophers, physiologists, chemists, pathologists and dieteticians, all agree in this. Not, of course, that every individual eats too much; but that the people of this country, as a people, are given to excessive and unnecessary eating.

The proper quantity of food must necessarily vary according to the age, occupation, habits, and health of a person, and also the climate or temperature in which he lives. Children and young persons require an extra amount of food to furnish material for the growth of the body. The more rapid the growth of the child, the greater the demand for food.

Persons of active habits, and such as labor hard, or exercise a great deal, need more food than those of inactive or sedentary habits. Increased action of the body increases in a proportionate degree the wearing out of the organism, and facilitates the removal of the waste material through the different outlets, especially through the lungs and the skin. This increase in the waste of the body requires, of course, an additional amount of food out of which new material is to be made to supply the loss. This law holds good, however, only where labor or bodily exertion is not carried so far as to produce muscular and nervous exhaustion, and consequent debility; for in such case the stomach and whole digestive apparatus would suffer also, and would require that less food be taken, for the time being, or greater debility and perhaps serious disease would be the result.

A sudden change from active, laborious habits, to such as are inactive and confining, requires that the usual amount of food should be diminished. Let an active, laboring man take a trip on one of our fine steamboats requiring several days, and ten chances to one he will soon feel the effects of disregarding this important law of our nature, in the form of Dyspepsia, Sour Stomach, Headache, and a general derangement of the system. He will be sensibly impressed with

the fact that he has either eaten too much, or has not had exercise enough.

In warm weather, or in warm climates, we require much less food, and of a less stimulating nature, than in cold. I have frequently noticed that when in New Orleans I ate much less than when in the upper country, and that I could do as well there on two meals a day, as on three in the latitude of Cincinnati or Chicago. A certain amount of food is needed for fuel; in other words, a certain amount of carbon, which is obtained from our food, is needed for a sort of combustion by its union with oxygen, for the purpose of producing bodily heat, and of maintaining a proper temperature of the system. In warm weather, and even when the body is warmly clothed, a less amount of food for this purpose will be needed. In the arctic regions, the inhabitants live almost exclusively on animal food; while under the tropics some nations subsist entirely on vegetable diet, and do not seem to wish or require any thing more stimulating.

The quantity of food must also be regulated according to the health of the individual, and consequent condition of the digestive organs. No more should be taken than can be well digested; for unless the food is properly digested and changed, as has been described, it does not invigorate the system, but actually does harm. Large quantities of food at any time oppress the stomach, and produce languor of both body and mind, and of course can but be still more detrimental when the system is not in perfect health.

Some writers lay it down as a rule to be observed in regard to quantity, other things being equal, that we should eat no more than is barely sufficient to satisfy the appetite. This, however, is not a safe rule. We are not always able to distinguish readily between *appetite* and mere *taste*, and hence are liable to eat too much. It is far better to say, never eat till the appetite is satisfied—always quit hungry. Most persons seem to eat just about as much as they can, so as not to suffer from it immediately. The inquiry seems to be—with those who inquire at all—not how little they may eat, but rather how much, without the loss of health as the consequence. It is a better rule, I have said, to leave off hungry, or, as some say, never eat quite enough. "Grant Thorburn, whose writings over the signature of Laurie Todd have interested and delighted many, and who, at the age of ninety, or nearly so, was almost as young in his feelings as ever he was, was accustomed to say to his friends that he never ate enough in his whole life." But even this rule—to leave off hungry—will not apply in all cases, for some people never are hungry! There was once a sort of half-idiot, who always went about asking the people if they didn't wish to know the art of never being dry, or thirsty?

The secret was, he said, "always mind to drink before you are dry, and you will never be dry." A great many people apply this rule to their eating. They always eat before they are hungry, and hence never are hungry. The present fashionable styles of cookery are well calculated to make us mistake taste for appetite, and eat more than we ought, and more than we would of good, plain, wholesome food.

**Eating Between Meals.**—One of the most common sins against the Laws of Health is eating between our regular meals. At present it is customary in many places and with persons, of all classes, to eat so often that they seldom, if ever, have a good appetite; and what appetite they may have at first, is soon spoiled by their over-indulgence in eating. Not content with three meals a day, they must take a lunch in the forenoon, and another in the afternoon, so that the stomach has no rest during the whole day, and by the time supper arrives, it is so much fatigued and jaded that this meal—which is usually a heavy one—will hardly be disposed of during the whole night. The reward so richly earned is sure to follow. Our sleep is disturbed and unrefreshing; the night is passed in restless anxiety or distressing dreams, and we wake next morning with a bad taste in the mouth, dryness of the throat, dull headache, loss of appetite, and an unwillingness to rise. Such a course of living, if persisted in, will unquestionably bring about a bad state of things, resulting in confirmed Dyspepsia, and a general loss of health. The stomach requires a proper degree of rest. It has a muscular coat, which, like all muscular bodies, needs rest after exercise, and must have it—or we will pay the penalty. Of all the organs of the body, there is probably none so much abused as the stomach.

Whether we eat once, twice, or three times a day—and we should never eat more than three times—we should eat only at our regular meals. Nothing containing nutriment, whether solid or liquid, whether fruits, nuts, or cakes, should be allowed to go down our throats between meals. Apples, oranges, nuts, and the like, of course, are intended for us to eat, but it should all be done at our tables, and regular meals. Not, however, as the general custom is, at the end, when we have already eaten as much as we ought, but along with our bread and other food, as a part of the meal. And so, also, should pies, puddings and cakes, if eaten at all. But it is better to avoid all pastries entirely.

It is a mistaken idea among farmers that they can not get along through harvest, during the long hot days, without eating something between meals—especially in the afternoon. They will find on trial that they will be able to endure the heat and fatigue of the harvest

season much better without their "four o'clock piece." It only does harm, by over-tasking the stomach and rendering it unprepared for the evening meal. If you value good health and long life, avoid all eating between your regular meals—every "appearance of evil" of this kind—whether it be lunches, oyster suppers, apples, oranges, candies, or what not, either in large or in small quantities; for even the smallest portion—a crust of bread or a mouthful of apple—will call into exercise the whole digestive system.

**Regularity in Eating.**—Another very important rule in regard to eating, is regularity. We should make it a point to take our meals at regular hours; and rather than vary from this it is better to miss a meal occasionally. It may be stated as a general law—with here and there an exception, perhaps, as there are exceptions to all general laws—that those persons who are most regular in their hours of eating, other things being equal, are the most healthy, and in old age are the most cheerful, sprightly and youthful in their feelings.

We are, to a great extent, creatures of habit, and may accustom ourselves to almost any hours for eating, and hence may as well be regular as irregular. The habit of irregular eating often grows up with us from childhood. Unfortunately for human health and happiness, the young are too often trained up, in regard to this matter, in a way they should not go, and when they become old they dislike to part from it. Too often in childhood is the foundation laid for ruined health and a miserable existence, by the fond but unwise indulgence of parents. And many a child, too, has been carried away by summer and autumnal diseases, that might have escaped, had it been less indulged, or been properly trained in its habits of eating. Many a child has been *fed to death* by its mother. Locke, the philosopher, has said, that "when a child asks for food at any other time than at his regular meals, plain bread should be given him—no pastry, no delicacies, but simply plain bread. For if the child is really hungry, plain bread will readily go down; if not hungry, let him go without till he is so." This is good advice. But it is still better to give him nothing at all between his meal times. These, of course, should be more frequent than for larger persons; but they should be at regular stated periods. I know it is hard to train up a child in the way he should go, and harder still to train ourselves to proper dietetic habits but the importance of doing so, whether we eat two, three, or more times a day, is at least equal to the difficulties we may encounter, and is certainly worthy of our best and most considerate efforts.

**Eating Too Fast.**—Another very common violation of the Laws of Health, is in eating too fast. This is almost as bad as eating too much, for it amounts to nearly the same thing. Persons sometimes

boast that they can eat a regular meal in five or six minutes. Such persons swallow their food without chewing. This is not really eating, in the proper sense of the term. Every one knows, that if we eat fast, we can not properly masticate our food; and if there be one law of our nature which is more rigid in its demands than any other, and the violation of which is sure to be followed, sooner or later, by severe punishment, it is that which requires that our food be well masticated before it is swallowed.

As I have said in describing the process of digestion, the food, after it enters the stomach, has to be changed into a soft, pulpy mass, called chyme, which is done by the solvent properties of the gastric juice, and the incessant muscular action of the stomach. This change must be complete; there must be no lumps, or large chunks, or even small ones—but all must be reduced to a perfect semi-fluid mass, before it can pass into the duodenum for chylification. Do you not see how much labor you can save your stomach by chewing your food well, or how much you may cause it by neglecting to do so? The stomach, as I have several times said, needs rest after its labor; but if it must be tugging away upon a large chunk of beef-steak, or several of them, and a cold potato, and perhaps a large slice of pickle, from the moment you have swallowed your dinner until supper time, do you not see that it will get no time to rest? And tug away it certainly will, until the last chunk you have swallowed is reduced to chyme, or it has given out in utter exhaustion, or has made itself sick by bringing on inflammation. It must be plain, therefore, that the habit of swallowing our food half masticated, or less than half, as is done by those who eat fast, is a very bad one.

Another serious objection to fast eating is, that it does not become properly mixed or moistened with the saliva—indeed, scarcely at all. The saliva does not commence to flow, or even to secrete, until we commence chewing the food, and it continues to flow only while we continue to chew. But if the food is gulped down without chewing, there will be little or no saliva go down with it; yet the saliva, to some extent certainly, is essential to proper and healthy digestion. It will not answer so well to moisten and wash down the food with water, or other drinks. That will only make the matter worse, for it will retard digestion by preventing the flow of the gastric juice, or by diluting it if it does flow. There is no way so good as Nature's own way. Our teeth have been given us to grind our food, and the salivary glands to moisten it, and we should make use of them. Instead of five or six minutes, we should never occupy less than thirty, in eating a full meal, where we can at all command the time; and it is better, especially at dinner, to go over, rather than under thirty minutes

But whether you eat slow or fast, a long or a short time, little or much, always bear this one important thing in mind—masticate your food well, before you send it into your stomach. By so doing you will derive more benefit from it, will not be so likely to eat too much, and will enjoy vastly better health.

## RESPIRATION.

In describing the anatomy of the lungs and the circulation of the blood enough, perhaps, has been said to give you a tolerably correct idea of the process of respiration, and of the important relation it bears to nutrition, on account of its influence upon the blood. Some special remarks upon the subject, however, may not be amiss, as it is one of the essential processes of the living economy, without which we could not live, any more than we could live without the blood itself. Every body knows that we can not live without breathing—that if from any cause whatever our breath is cut short, we die immediately. But I apprehend it is not very generally known why this is so, or what is the exact relation the air which we inhale into our lungs sustains to our animal life. This will now be explained.

**Necessity of Respiration.**—Respiration, or breathing, is for two important purposes: First, and mainly, for the purpose of purifying the blood; and second, for the purpose of producing animal heat. The organs engaged in respiration are the lungs, the bronchial tubes, and the air-cells of the lungs; and when the change of the blood is included, the pulmonary arteries, veins, and capillaries of the lungs are to be added. Besides these, if we include the mechanical act of breathing, the diaphragm and certain muscles of the chest are also to be taken into the account.

The purification of the blood is indispensable, so indispensable indeed, that it would soon cause death if it were to remain unchanged. The venous blood is full of poison, which it has acquired in its circulation through the body; and this poison can only be removed by bringing it into contact with the atmospheric air, which is done in the lungs by the process of breathing. This poison is carbonic acid, and results from the union of carbon with oxygen, two agents which have a remarkable affinity for each other when found in the body. Carbon, as I have before remarked, is obtained from our food; it is of the same nature as charcoal, and in itself is quite as harmless as charcoal; but when it unites with oxygen, or, as is really the case, when it is burned up by that vital gas, the result or residuum—what we may call the *ashes*—is carbonic acid, a suffocating, deadly poison. This carbonic acid is the same thing that is sometimes found at the bottom of wells, and in mines, in the form of a gas, usually called "choke-

damp," and which will kill a person or animal immediately, if breathed or inhaled into the lungs. It is also the same as that given off by burning charcoal, which has often caused the death of persons, by suffocation, who have left it to escape into their bed-rooms.

The blood is sent to the lungs for the purpose of getting rid of this poison. It there escapes through the air-cells, and is expired, or thrown off with the breath. This is the reason why people are suffocated, or their health greatly injured, by breathing the same air over again too many times. It becomes more and more charged with this poisonous gas every time it is breathed, and if continued long enough, will produce death as effectually and certainly as the choke-damp of wells. In badly ventilated rooms, and in buildings containing large public assemblies, people are often poisoned in this way, and if not killed outright, have headaches, nervous depression, and faintings, which often lay the foundation of more serious diseases.

**Mechanical Act of Breathing.**—As has been said, the diaphragm is the principal organ in producing the act of breathing. For a particular description of this muscle, see its anatomy. By its contraction it presses down the abdominal viscera immediately beneath it, and thereby enlarges the capacity of the chest in that direction, allowing the lungs to expand, by following it. At the same time, the muscles of the ribs contract and draw them upward and outward. The chest being thus enlarged—downward by the diaphragm, and laterally by the muscles of the ribs, giving the lungs room to stretch out and expand, which they do—a *vacuum* is formed, and the air rushes in through the trachea, or windpipe, and the bronchial tubes, and fills up the air-cells; and just on the very same principle, too, that air will rush in and fill up any vacuum. This is called *inspiration*. It is estimated that the whole extent of these air-tubes and cells, in the lungs of a grown person, is equal to twenty thousand square inches, or more than twenty times the surface of the whole body; and that the quantity of air received into, and expired from them, in twenty-four hours—allowing that we breathe twenty times a minute, and fill the lungs each time—must be near four thousand gallons. But we do not always inhale a full breath—seldom as full as we ought. Many persons injure their health by getting into a habit of inhaling too little air; and some ladies ruin theirs by lacing their chests so that they can not, if they would, inhale more than half as much as they should. It would be much wiser, because much less injurious, if they would compress their feet, like the Chinese ladies, instead of their lungs.

When we inhale the air and inflate the lungs, we are said to *draw in* the breath; but the *drawing*, you perceive, is done by the dia-

phragm and intercostal muscles, which enlarge the chest, and the air *forces itself in* and fills up the lungs. When the air has remained in the lungs a sufficient time to purify the blood, the muscles relax, the ribs fall in or press upon the sides of the lungs, the diaphragm rises, being forced upward again by the stomach and liver and some of the abdominal muscles, and thus the lungs are *compressed*, and the air ejected or forced out. The expulsion of the air from the lungs, or sending the breath *out*, is called *expiration*. And the whole process—inspiration and expiration, or drawing in and sending out the air—is called *respiration*, or breathing.

**Changes of the Blood and Air.**—The manner in which the blood is purified will be better understood by observing the changes which it and the air undergo, when they come in contact with each other. About one-fifth part of the atmospheric air is *oxygen*—the balance *nitrogen*. On examining the air, however—the breath—as it comes from the lungs, it will be found that the greater part of the oxygen has disappeared, and that another gas—carbonic acid—has taken its place. This new gas, as has been said, is formed by the union of the oxygen from the air with the carbon in the blood. The venous blood, which is heavily charged with carbon, and which gives it its dark color, is conveyed to the lungs through the pulmonary arteries, and passes from them into the capillaries, which surround the air-cells, forming, as has been said, a fine *net-work*. It is here that the blood is brought in contact with the air—or so near it that it amounts, in effect, to the same thing. The air is in the cells, the blood on the outside of them in the minute capillaries, the walls of which are so thin and porous that the oxygen escapes from the air, unites with the blood, burns up its carbon, sets free the carbonic acid, which results from the combustion, and which escapes through the cells, takes the place of the oxygen in the air, and is ejected with it from the lungs. Thus the blood becomes changed—oxygenized, as it is sometimes termed—and at the same time the air or breath becomes changed also. The one is made pure, the other impure. And this process goes on constantly; every time we inspire, or take in a fresh supply of air, a fresh supply of venous blood is forced into the capillaries, around the air-cells; the previous lot, being purified, is sent off into the veins of the lungs, and conveyed by them to the heart, for general distribution.

One important effect of this change upon the blood is, that it is turned from a dark purple to a bright red color. This is caused partly by the destruction of the carbon and carbonic acid in the blood, as has been described, and partly by the union of oxygen with the iron in the blood. Of the fact that there is a certain portion of iron in the blood, there can be no doubt. It has been abundantly proved by chemical analysis. The red globules of the blood contain the iron, in the

form of hæmoglobin, and this readily unites with oxygen, to form oxy-hæmoglobin; this latter product as readily gives up its oxygen as the hæmoglobin took it up. Oxyhæmoglobin is bright red in color, hence the color of arterial blood, which contains much oxyhæmoglobin.

**Importance of Free Ventilation.** — It is estimated that an ordinary sized person requires about 40,000 cubic inches of oxygen gas every twenty-four hours, to be used up in breathing, in the manner just stated. About four-fifths of this, or perhaps a little more, is consumed in burning up the carbon in the blood, and is turned into carbonic acid; the balance is used in giving to the blood its color and proper stimulus. From this simple fact, and bearing in mind also that only about one-fifth part of the air is oxygen, any person can form a tolerably correct idea as to the amount of fresh air needed in a given time in public halls and places containing a large number of people. And with the other simple fact before them, that about one-fifth of the air or breath that escapes from our lungs—if it was pure when it entered—is carbonic acid gas, and contains little or no oxygen, they can form some idea of the importance and necessity of free ventilation. It is seldom, however, that this matter is properly attended to; indeed, we have good reason to believe that its importance is very little understood. We often see several hundred persons crammed together into a room where not more air can enter than is necessary for one-fourth the number; and the consequence is, they all soon feel uneasy and oppressed, and many of them no doubt suffer afterward still worse; and yet the probability is that few of them ever think of the cause. But above all things, is it important that our sleeping-rooms should be well ventilated. Too much attention can hardly be paid to this matter; yet I am sorry to say very little is given to it, as a general thing. Benjamin Franklin somewhere says, that it is recorded of Methuselah—though he does not tell us *where* it is recorded—that when he was five hundred years old the angel of the Lord appeared unto him, and told him to arise and build himself a house, for he was to live yet five hundred years longer. "If I am to live but five hundred years," said Methuselah, "it is not worth while to build me a house; I will sleep in the open air, as I have been used to do." The moral of this is, that sleeping in the open air, or where he always had a full supply of pure fresh air, was the cause of his living so long. The hint is a good one, and we should profit by it in the arrangement of our sleeping-rooms.

## ANIMAL HEAT.

We are next to explain, if we can, the source of animal heat, and the manner in which it is generated. I say, if we can, for physiologists do not all agree in regard to this matter. That there is such a

thing as animal heat, and that the human system has within itself the power and capacity of generating this heat and of regulating it according to circumstances and conditions, we know; but the precise manner in which this is done, does not seem to be so well understood yet, as some other processes of animal life. Inanimate substances are influenced in their degrees of heat and cold by the temperature which surrounds them, and by other bodies with which they are in contact. Not so, however, with man. He has a temperature of his own, independent of the surrounding medium in which he lives, and is capable of maintaining this temperature at very nearly the same degree in all seasons and climates, whether the surrounding atmosphere be warm or cold. The standard heat of the human body is about 98.4 degrees, Fahrenheit. It seldom varies from this, in a state of health; or if it is does, it is but little. Perhaps 98 to 99 degrees may be regarded as the limits of variation.

I have said that physiologists do not all agree as to the production of animal heat. This is true, however, only to a certain extent. All the best authors on the subject agree in this—that the muscles are the principal laboratory of the system for the production of heat, and that it results from the chemical action of the blood and tissues; or, to speak more correctly, from the oxidation, *i. e.*, combustion of the protoplasm of the muscles by the oxygen of the blood. However, in addition to this, there is a constant union of oxygen and carbon, and consequent evolution of heat, going on in the minute capillary vessels throughout the system, and which accounts in part for the change in the color of the blood, from a light red to a purple, or from arterial to venous. One thing is certain: a union of oxygen and carbon cannot take place anywhere, whether in the system, or in the open air, without producing *combustion*, and consequently *heat*. What we call *fire*, or the burning of coal, wood, or any other combustible substance, is nothing more or less than the rapid union of the oxygen in the atmosphere with the carbon in the substance burned. The union which takes place in the human system between the oxygen and carbon, is not so rapid—not so great, as when it takes place in the open air, in the phenomenon of fire ; but, so far as it goes, it is precisely the same thing; and produces the same result—that of heat.

Probably sufficient has been said in explaining the process of respiration and the change of the blood in the lungs, to give one an idea of the manner in which heat is generated in the body. I have there told you that the oxygen escapes from the air we breathe, while it is in the air cells, and unites with the carbon in the blood as it passes through the capillaries which surround these cells; and that the union of these two agents produces a sort of combustion, which purifies the blood, or rids it of its excess of carbon. In other words, the oxygen burns up the carbon. Now, Nature is a great economizer; hence, this very process by which the blood is purified, is turned to a double account. The only way to get rid of

the carbon in the blood, which must be done somehow or other, is to burn it up. To do this, it must be brought into contact with oxygen, for without this wonderful gas, combustion cannot take place anywhere. But, as has also been said, a union of oxygen and carbon, or combustion, cannot take place, either in or out of the body, without producing *heat*. But the living organism requires heat. It must be kept near a certain degree of temperature, or the blood will thicken and stagnate, and the whole machinery of the system soon cease to operate. As the blood flows through every part of the system—is constantly going to and returning from every part, in a ceaseless round of circulation, there can be no better way—none so good, indeed—to warm the general system and all its parts, and maintain the required degree of temperature, and keep the temperature equalized throughout the body than by the agency of the blood. What a happy thought! What a wise arrangement! By the rapid and constant circulation of the blood, this temperature is extended and maintained throughout the system. What wisdom, both in arrangement and in economy, is here exhibited!

As an evidence that heat is generated in the muscles, and in the manner stated, we have but to observe the fact that the body becomes warmed, or its heat increased, by any exercise or other means that causes us to use our muscles extensively. As a more perfect test, let any person, instead of taking any manual exercise, sit or lie down in a cold room, and breathe faster and fuller for half an hour, and the result will be that he will grow quite warm, perhaps uncomfortably so. Many of us do this of cold winter nights, without, probably, ever thinking of the philosophy of the thing, for the purpose of getting warm in a cold bed. Cold atmosphere is more dense, and consequently contains more oxygen to the cubic inch, than warm atmosphere; and hence, the cold atmosphere with which we may be surrounded, and which we breathe, actually aids, by its coldness, in producing the increased amount of bodily heat required in cold weather. A person who sits still by a large fire on a cold day, will often be quite chilly, while another, who moves briskly about out of doors, will feel quite warm. The one vainly tries to imbibe warmth *externally*, while the other, by his exercise and consequent increased muscular activity, produces it *internally*.

Although the principal amount of animal heat is undoubtedly produced in the muscles, yet it probably is not all produced there. A portion of the oxygen which passes through the air-cells into the blood—perhaps one-fifth—instead of being consumed with the carbon, unites, as has been already stated, with the iron, or red globules of the blood, which gives that fluid its bright red color. This passes into the general circulation, and while the blood is passing through the capillary vessels, especially in the skin and near the surface of the body, a union of oxygen and carbon again takes place, in which more or less heat is evolved. We know that the blood loses its bright red appearance, and that this transformation takes

place in the capillaries, where it changes from arterial to venous blood. Hence, it must part with its oxygen, and the most reasonable conclusion seems to be, that it is used in consuming the carbon that it here meets with.

Some have supposed that animal heat is owing, in some respects, to nervous influence. If by nervous influence we mean the nervous energy of the system, this may, to a certain extent, be true. It may be that nervous energy has something to do with the production of heat; perhaps it serves as the spark to light the fire, for we know that oxygen and carbon will not of themselves ignite; that they will not commence to burn—in other words, to unite in the form of combustion, without first being started or touched off by the application of a spark from some source or other. Electricity will do this. And it may be that a constant flow of nervous energy, a constant application of sparks, is necessary to continue the combustion. May it not be that the presence of animal electricity keeps up this singular fire, this combustion of carbon and oxygen, in the blood? Allowing the nervous system to be the source of the nervous energy, and the nerves its conductors, in this way, and this only, I think, may it be said that animal heat is dependent upon nervous influence.

## ABSORPTION.

In describing the process of digestion, I had occasion to speak of the absorption of the chyle from the duodenum and small intestines; also of the fact, that all fluids taken into the stomach were absorbed before digestion took place. These processes are carried on by certain vessels for that purpose, called the lacteals and lymphatics, and have already been described. There is still another process of absorption, however, carried on very generally throughout the system, in regard to which it is proper to say something.

By absorption is meant the removal, the sucking-in or taking-up, of any substance which comes in contact with the body, or any portion of it, either upon the surface in the lungs, or in the stomach and intestines, which is done by what are called the *absorbents* or *lymphatics*, a set of minute vessels everywhere distributed through the system, and which act like a set of hungry, ravenous little animals. They will absorb everything that comes in their way, if they can, whether it be injurious or beneficial, poisonous or healthy; and as they empty their contents directly into the veins, the blood, of course, becomes poisoned in this way, and disease, and not infrequently death, is the consequence. It is on this principle of absorption that medicines are often applied to the surface of the body when they cannot be taken internally. In such cases, the cuticle, or scarf-skin, is first removed by a blister, as, without this, absorption will not take place readily. Yet we know that it will take place to some extent, even without the removal

of the cuticle. This is proved by the fact that thirst may be diminished by bathing the body in water; and even hunger to some extent satisfied, by the application of nutritious liquids to the surface. Sailors are aware of this fact, and sometimes, in cases of extreme thirst and destitution of fresh water, let themselves down into the sea water, by which means the blood becomes sufficiently diluted by the water that is imbibed or absorbed through the skin, greatly to relieve the burning thirst, for the time being. But, as a general thing, absorption will not take place to any perceptible extent through the cuticle or outside skin, and probably only, as in cases of bathing, where the body is allowed to remain in the water long enough to soften the cuticle to an extent sufficient to admit of a permeation which otherwise could not occur.

In cases of cuts and abrasions of the skin, persons should be very careful about coming in contact with poisonous substances. Serious, and often fatal, cases of poisoning have occurred in this way. Medical students are sometimes poisoned in this way by cutting themselves while dissecting dead bodies; and occasionally the same fatal results occur to persons in removing the skin from dead animals. Putrefied flesh is poison, and if this poison, though ever so small a quantity, is brought in contact with any portion of the body where the cuticle has been removed, or with a cut or sore, it is immediately taken up by the absorbents and carried into the blood, and the person is poisoned. Such poisons are generally fatal. It is on this principle that the poison of snakes and other venomous reptiles act. Vegetable and mineral poisons will act in the same way. Persons cannot be too careful in regard to this matter.

But probably the greatest medium through which foreign substances and agents are absorbed into the system, is the lungs. Various poisons, vapors, and other hurtful substances and gases which float in the atmosphere, are taken into the lungs in breathing, and, by means of absorption, are carried into the blood and the general system. Absorption by the lungs is very rapid and powerful. It is a well-known fact, having been repeatedly proved by experiments, that if a person breathe the vapor of Turpentine for a few minutes, it may be detected in the blood and other fluids of the system in a very short time afterward. The vapor of Prussic Acid, if inhaled into the lungs, will produce death almost instantly. This will account for the origin of many diseases, the causes of which are not readily understood, and will also show us why and how it is that so much sickness is found in crowded tenements, and in cities and streets where there is but little pure air in circulation, and where filth and dirt and decayed matter are allowed to accumulate. It will also account for the Fevers and Agues of new countries, and certain marshy districts.

If we would enjoy good health, therefore, we must learn to avoid the enemies of health. We must seek pure air, and, in hot seasons at least, avoid swampy and malarious localities, and filthy streets and cities. But

if we disregard the most palpable Laws of Health, and become sick, we should not lay the blame to an inscrutable Providence, or a hard and cruel fate, but to our own ignorance and temerity, and the transgression of the laws which we ought to understand and obey. If the poisons which float in the air we breathe could not penetrate the air-cells of the lungs and enter the blood, then neither could the oxygen of the air, and hence the blood could not be purged of its carbon, and animal heat could not be generated, and we should soon die from impure blood or from the effects of cold. So, too, if the cutaneous and other absorbents could not take up poisonous substances that come in contact with them, and carry them into the blood, then neither could they remove, in like manner, the waste and morbid matter of the system, and our bodies would soon putrefy and decompose, in the most horrid manner. All these functions and laws of our being are for the best and wisest purposes—are, in fact, essential to our existence; and it is our business and our duty to make ourselves acquainted with them. All the laws of Nature, whether physical or organic, are inflexible in their operation, and their infringement or disregard is sure to be followed by appropriate punishment. They make no allowance for motive or ignorance, but act upon all alike, whether they be wise or ignorant.

## PERSPIRATION.

**The Skin.**—The skin is the seat of the important function of perspiration. It forms the external covering of the body, and, to the naked eye, appears to consist of a single membrane. Examination, however, has shown that it is composed of no less than three layers or membranes.

The first or outside layer is called the *cuticle*, or *epidermis*, and sometimes also the "scarf-skin." It is the part that is raised in a blister, and, except on the palms of the hands and soles of the feet, is very thin and transparent. It has no blood-vessels or nerves, and is therefore destitute of feeling, or sensibility. It is perforated with innumerable pores, or minute holes, through which the perspiration passes, and also the hairs. It is constantly wearing out and being renewed. On the palms of the hands and soles of the feet it is very thick, particularly in persons that labor, and being everywhere without sensibility, it serves as a protection to the true skin, and a barrier against the ready absorption of substances that come in contact with the surface.

The internal layer is called the *cutis vera*, or *true skin*, and is plentifully supplied with nerves and blood-vessels. So numerous are they, indeed, that you cannot insert the point of a needle without producing pain and causing the blood to flow. When examined under a microscope, this layer is found to consist partly of dense fibers which intersect each other in various directions, and partly of minute blood-vessels, capillaries, and nerves, which fill up the spaces between the fibers, the whole forming a most complete and com-

pact net-work. Within the true skin are also an immense number of little glands with minute ducts, which penetrate the other layers and open upon the surface, constituting the pores of the skin. These glands are of two kinds, the *sudorific glands*, which secrete the perspiration, or the aqueous portion of it, and the *sebaceous glands*, which secrete an oily fluid, which serves to lubricate the external skin and defend it from the action of moisture, and also prevents it from becoming dry and harsh. It is owing to the presence of this oily substance that water or perspiration collects in drops upon the skin.

Between these two layers of the skin, or between the cuticle and cutis, is a thin layer called the *rete mucosum*, the office of which seems to be simply to contain the coloring-matter of the different races. In the negro, it is black; in the mulatto, yellow; in the Indian, a dirty red; and in the European, more or less white, as the appearance of the skin may indicate. Were it not for the rete mucosum, the African would appear as white as we do. It gives to the skin the various colors and shades of color, which are to be noticed in the people of different nations and climates.

**The Source of Perspiration.**—The perspiration, or what we call sweat, is secreted from the blood, by the little glands which I have just mentioned. While the blood is passing through the capillaries of the skin, these glands secrete from it, or absorb its excess of watery fluid, and along with it a large amount of useless and extraneous matter.

Perspiration is distinguished into two kinds—*sensible* and *insensible;* a distinction, however, without any difference, except in quantity. It is said to be insensible when it passes off from the body in the form of an invisible vapor; and sensible when it collects on the surface in drops, in the form of sweat. In the one case it is so gradual, and is so rapidly evaporated, that it does not accumulate upon the skin so as to be perceived, and hence is said to be insensible; while in the other, either from exercise, the heat of the surrounding temperature, or the action of some agent taken into the system, the perspirable matter is thrown upon the surface faster than it can be evaporated, so that it becomes more or less perceptible, and is therefore said to be sensible. The process is all the same, however, in both cases, the difference being only in degree.

**The Uses of Perspiration.**—Most prominent among the uses of perspiration may be regarded that of removing from the system worn-out and useless matter and poisonous gases. It has been shown that through the medium of respiration the blood is oxygenized and purged of its excess of carbon and carbonic acid; but it is probably relieved of a still greater amount of impurities and injurious substances through that of perspiration. It has been ascertained that the average number of pores in the skin to the square inch is about 2,800, and the number of square inches of surface in a man of ordinary size is 2,500, which would give the whole number of pores of the skin as 7,000,000. We need not be surprised, therefore, at the fact

stated by Sanctorious and other eminent writers on the subject that from one-half to five-eighths of all that we eat and drink passes off through these pores in the form of perspiration. All physiologists agree that from twenty to forty ounces of matter—thirty ounces being the average—pass off through the skin of a healthy adult every twenty-four hours. A large proportion of this perspirable matter is made up of the decayed and waste particles of the body, which have been thrown into the circulation by the absorbents, and thence extracted by the sudorific glands. As has been stated elsewhere, the constant wearing out of the material of the various tissues of the body furnishes a large amount of waste matter, all, or nearly all, of which is eliminated from the blood and the system in this way.

Besides the waste material of the body, there are often other irritating and poisonous substances which can be removed from the system only through the medium of perspiration. I have already explained in the proper place the course which everything that enters the stomach takes in its passage through the system. Fluids are absorbed and pass directly into the blood. Solids undergo digestion, and then pass into the duodenum and intestines, whence all that can be reduced to a semi-fluid state, in the form of chyle, is conveyed into the blood through the lacteals and thoracic duct. When poisonous substances are taken into the stomach, therefore, if not ejected by vomiting, induced either by the poison itself or by something taken for the purpose, or removed by artificial means, they will enter the blood, and with it the general system, in the same way; that is, through the absorbents or the chyle ducts. Solid and liquid poisons usually enter the system in this way, through the mouth and stomach, while poisonous vapors, miasmata, and gaseous substances enter through the lungs and pass directly into the blood by absorption, as has been previously explained. It is reasonable to suppose that more or less poison is taken into the system through one or both of these mediums every day. There is probably not a day or a night but we inhale more or less impurities in the air we breathe. In cities, towns, and in many districts of country, especially in warm weather, there are always more or less animal and vegetable effluvia, and poisonous gases afloat in the atmosphere. And it cannot be doubted that we often take into our stomachs irritating and poisonous substances along with our food, to say nothing of our medicines. All such injurious agents, after they have once entered the circulation, can be removed from the system only through the grand emunctories of the blood, the perspiratory organs. By this most admirable provision of Nature, the fluids are cleansed, and extraneous matter is eliminated from the body, but for which, debility, disease, and a general derangement of the living machinery would speedily ensue.

Another use of the perspiratory process is to regulate and modify the temperature of the body. As has been shown, animal heat is generated in the system by a sort of combustion resulting from the union of oxygen and

carbon. As this combustion, in the coldest of weather, is sufficient to maintain the heat of the system at about 98.4 degrees, it is evident that if there were not some wise provision for its escape in case of excess, we should be too warm in summer; indeed, we should be too warm at all times, and would soon be consumed with burning fever. A large amount of heat escapes from the body by evaporation, passing out through the pores of the skin along with the perspiration; indeed, this is its natural outlet, and its escape is the more rapid in proportion to its excess, if the perspiratory organs be in a healthy condition. Everyone knows how readily we perspire when the body is heated by exercise; and in very warm weather we often perspire freely without exercise. Exercise, obviously, augments the heat of the body, and this renders an increase of perspiration necessary. We here see another evidence of the economy and wisdom of Nature in employing the perspiratory process for the double purpose of relieving the system of its waste matter and its excess of heat at the same time.

We may still add, as another use of perspiration, and one, too, of no small consequence—that of moistening the surface of the body. The skin, as well as every other part of the body, requires a certain amount of moisture for the purpose of lubrication, to keep it soft, pliable, and in a healthy condition, and also to protect it against the action of the atmosphere and other external agents, and against the too ready absorption of poisonous substances.

**Importance of Perspiration.**—The perspiratory process is one of immense importance in the living machine, and can scarcely be overestimated. There is probably no other single function of the body which holds so great an influence over the health and integrity of the system. If you have read what has been said of its uses, and will but reflect a moment upon the probable consequences that would result in case it should be suspended, you cannot help but see that it is of the greatest importance. So apparent is this that it seems almost unnecessary for me to say anything further on the subject. But, as I wish to make my remarks as useful and practical as my limited space will allow, I propose to glance, for a few moments, at some of the consequences of suspended perspiration, in order that one may the better understand and appreciate the importance of the function.

You know something of Fever. Perhaps you have felt its scorching influence. Did you ever notice, or think of, the condition which exists in Fever? The skin is hot and dry. The whole system seems filled to excess with heat. The heart beats violently, and the blood rushes through the arteries with unwonted rapidity and violence. *There is no perspiration!* Did you ever think of that? The prominent condition in Fever is *suspended perspiration.* Suspended perspiration is not the remote cause—not the exciting, first cause of the disease. It may not be even the second, nor the third cause—for there are often several causes which combine to produce Fever; but it is the actual, real condition which exists in all cases

of general Fever. In treating a case of Fever, one of the first objects of the physician is to produce a free perspiration. In such cases, relaxant and sudorific, or "sweating medicines," are given. And very often a good emetic of Lobelia and Ipecac will afford immediate relief, because it relaxes the pores of the skin and excites the sudorific glands, thus inducing perspiration, by which means the confined heat of the body is allowed to escape, and along with it more or less of the accumulated vitiating matter which acts as an exciting cause of the disease. Cleansing the body well with a weak Alkali, made by adding a little Saleratus, or common Lye, to warm Water, is often beneficial; because it removes from the surface the oily matter which is thrown out by the sebaceous glands, and which is apt to become tough and hard in case of Fever, and obstruct the external openings of the pores. But one of the best means of relief in cases of Fever is the Hydropathic treatment, or Wet Sheet. The cold water absorbs the heat from the surface, relaxes the skin, opens the pores, excites the cutaneous glands, and induces perspiration, more quickly, safely, and better, probably, than any other means known. A few good "packings" in the cold Wet Sheet, of an hour to an hour and a half each, will often break up the worst case of ordinary Fever, and simply, too, upon the ground of restoring a healthy action to the perspiratory organs. The tub bath is often used in cases of Fever, the temperature of the bath varying from 60° to 90°, the duration of the bath say from five to fifteen minutes, being repeated every two to four hours.

In Fever, I have said, the skin is hot and dry, and there is no perspiration. Let us now look, for a moment, into the cause of all this trouble and derangement. One of the principal uses of perspiration is to eliminate from the body its worn-out and morbid matter and poisonous substances. Now, let there be a check of perspiration, from any cause whatever, and what will be the consequence? If it is but slight, we may have unpleasant feelings—Headache, perhaps a Cough, or it may be the Toothache, or Rheumatism, with a dry skin, and more or less Feverish symptoms. The obstruction, however, not being very great, Nature may overcome it in a day or two, and restore things to their normal condition. But let the obstruction be complete, and continue for some time, and then see what follows. In the first place, all the fetid and waste matter is retained in the system, and is distributed by the blood through every part of the body. And this offensive matter is all the while increasing in quantity. Soon it begins to act as an irritant and poison. The fluids become vitiated; the muscular fibers irritated; then a sort of general inflammation sets in. Add to this the accumulating heat of the body, which is also very much confined, and you can easily see how we may soon have a Fever. In such case, the suppression of the perspiratory process may be the primary or main cause of the disease, for the retained waste matter of the system will soon prove a sufficient proximate or exciting cause.

But again: In certain districts, and at certain seasons of the year, especially in hot weather, the atmosphere is more or less loaded with malaria, and, it may be, with other poisons. Suppose the perspiratory process be interrupted or suspended at such times, then all of this noxious matter that is absorbed through the medium of the lungs, will be retained in the system, and the probable consequence will be disease.

The skin should always, if possible, be kept in a healthy condition; and whenever, therefore, we discover that from any cause whatever its functions have become deranged or suspended, we should lose no time in resorting to the proper means necessary to overcome and remove the obstruction, and bring about a free and healthy action. Persons will sometimes go for several days, or a whole week, with obstructed perspiration, and the attending symptoms of an attack of Fever or some other disease, without doing anything to remove the difficulty. They know from their unpleasant feelings that they are not well, and they see that they do not sweat any, or if any, very little; the skin most of the time is dry and harsh, accompanied, perhaps, with occasional flashes of heat—until finally they are prostrated by disease; whereas, if they had made use of some simple means at the commencement, or during the early stage of the derangement, such as the Wet Sheet, the Vapor Bath, or a good artificial sweat by means of Warm Teas, aided in obstinate cases by a Lobelia Emetic, they might have saved themselves from a long spell of sickness, and perhaps a heavy doctor's bill. There is nothing like taking time by the forelock, in such cases.

## BATHING AS A MEANS OF HEALTH.

We have seen, I trust, how important a relation the function of perspiration holds, in the general economy, to the health and well-being of the system. Among the means best calculated to promote a healthy condition of this function, that of frequent bathing may be regarded as holding a pre-eminent rank. Cleanliness of body is one of the necessary conditions of health, because it is essential to a healthy condition of the skin, and, consequently, of the whole perspiratory apparatus. Daily bathing, of some sort or other, is to be recommended at all seasons, but it should be rigidly observed during warm weather. The water to be used for this purpose may be warm, cold, or tepid, according to the time, or as the individual may prefer. But, as a general rule, the morning bath should always be cold, or cool; while the warm or tepid bath is to be preferred at night—except in extreme hot weather, when either may be used.

**The Sponge Bath.**—In all ordinary cases, the sponge bath may be recommended, on account of its simplicity, and of its being easily obtained at almost all times and places. It consists simply in washing the body all over, by means of a sponge, or cloth, or it may be

done with the hands alone, and then wiping dry and rubbing the surface well with a towel. Friction upon the skin is an essential part of the process, and should be used freely and thoroughly, both during the washing and afterward, in drying the surface. It is necessary also that the person immediately after dressing should take free exercise in the open air for a short time, where the circumstances will, in any way, allow of it. None but very great invalids should be allowed to retire to bed immediately after bathing. The exercise may be taken either in the room, or out of doors, when the weather is favorable, as may be most suitable to the condition of the person.

Cold ablutions of this kind are suitable for all persons and constitutions. They may be used by women, children, persons of old age, and those of feeble health and constitutions. They exert a stimulating and strengthening influence upon the system, give tone and energy to the skin and perspiratory organs, promote the secretions and excretions, tend to equalize the circulation of the blood, and to relieve local congestions. Many a feeble constitution has been made comparatively healthy and robust by persevering in their use. They naturally have also a happy and beneficial effect upon the mind and intellect.

In cold weather, the room in which the bathing is performed may be slightly warmed for sickly and debilitated persons, in order to prevent the danger of their taking cold; but for persons in good health, or sufficiently so for them to get through the operation quickly, and take exercise immediately afterward, this should not be done. As a general thing, a cold room is to be preferred to a warm one, in all cases where the person goes immediately from the room into the open air.

**The Shower Bath.**—When convenient, the shower bath is an admirable thing—to be followed, of course, with proper friction and exercise. The morning is probably the best time to take it. In order to take this bath properly, it is necessary to have a box or apparatus constructed expressly for the purpose. Most of my readers, probably, will know how such an apparatus should be made. It is sufficient to say here that it consists, essentially, of an arrangement by which the water is allowed to fall upon the body in many small streams at the same time, and the greater the surface upon which they fall, the better. Usually these baths are so constructed that the streams fall perpendicularly, and strike upon the head and shoulders only. But sometimes they are so arranged, by means of leaden pipes, coiled around the inside of the box, somewhat like the worm of a still, which are perforated with small holes, through which the water jets out horizontally, and strikes the body on all sides, at the same time

that it falls upon the head and shoulders from above. This arrangement, of course, is the more complete; but the usual plan is amply sufficient for ordinary purposes. The box should be large enough to permit the person to stand erect in it, and still allow the water to fall one or two feet upon the head. At the top of the box may be placed a large tin basin or vessel, the bottom of which is perforated with small holes. Into this the water may be poured from a bucket by an assistant, or it may be conducted into it from a reservoir above. The bath consists emphatically of what its name indicates—*a shower*; any way to produce this will answer. Where there are no better means at hand, an assistant may stand upon a chair, or in some elevated position, and pour the water upon the bather from a common watering-pot, which will answer as a very good substitute for a more perfect machine.

The benefit of the shower bath consists mainly in the general shock, and consequent reaction, which it produces upon the nervous system, and the organs of the skin, whereby they are aroused to increased action, the functions of secretion and excretion promoted, and the whole economy more or less benefited. In order to derive the full benefits of the bath, the water must be cold. From a half minute to one or two minutes, according to the size and force of the streams, is long enough to remain under the shower. Children and feeble persons should be accustomed to the cold water of these baths by first using tepid or but slightly cool water, gradually changing to colder, until they are able to stand it at the lowest temperature. The shower bath apparatus may be recommended as an excellent thing in a family. It is not only a great preserver of health, but it is valuable as an auxiliary in the treatment of many diseases.

**The Full Bath.**—This consists in immersing the whole body in water. For this purpose, a tub, vat, or bathing trough, is necessary, which should be large enough to take in the whole person, and be sufficiently roomy to admit of freedom of motion. The water may be warm, tepid, or cold, according to circumstances. At night, it should be warm or tepid; and the person may remain in the bath half an hour.

If cold water is used, it is necessary to prepare the system for it before entering the bath, by first washing the head and neck with cold water, and then the shoulders and chest. This, indeed, is proper in all cases of bathing in cold water. It will prevent too great a rush of blood to the head, and to important internal organs, when the water comes in contact with the whole surface of the body.

The length of time that a person should remain in a cold full bath is but short. The sudden contact of cold with the surface drives the

blood from the capillaries of the skin into the larger blood-vessels, and if continued too long, it will necessarily concentrate upon internal organs, and may produce injurious consequences. The time may vary, according to the coldness of the water and the condition of the person. From half a minute to one or two minutes, will be long enough. A minute may be regarded as the average time, and if the water is very cold, half a minute will do. During the bath, the person should also exercise his limbs as much as he can, and rub himself with his hand or a bathing brush, or have an assistant to do it for him. As soon as he leaves the bath, he should quickly dry the whole body, and then make use of severe friction with a coarse towel, or brush, to promote a reaction. It is best for him when he can, to perform the rubbing himself, as it gives the whole body exercise. After dressing, the next thing is to exercise in the open air, whenever the circumstances will allow of it.

The cold full bath is beneficial in all cases where an increased reaction is necessary; where the warmth of the body is unequal, and needs to be equalized; where the organs of secretion are to be invigorated; where the circulation of the blood should be determined to the surface for the elimination of morbid matter from the system; and where the skin is in a feeble or unhealthy condition. It is to be avoided, however, in all congestions and inflammations of important internal organs, in all diseases of the chest, in affections of the brain, and where there is a tendency of blood to the head, in persons of plethoric habits, and where a violent excitement or shock would be likely to prove injurious. In all such cases, the warm or tepid bath may be used, not only with safety, but often with great advantage.

Besides these, there are several other kinds of baths, principally local in their character, as the head bath, foot bath, sitz bath, and the like, all of which are highly useful under certain circumstances. But as my remarks are intended to show the uses and beneficial effects of frequent ablutions and bathings, to explain the general principle upon which they act, and to urge upon the attention of the reader their necessity and importance, it is not necessary that I should enter into a detailed or special account of the various kinds of baths. The three which I have noticed will include the rest. They all act, more or less, upon the same principle; and when used as a remedial agent in the treatment of disease, if the affection be local in its character, the application of the water should also be local, and *vice versa*, if the disease be general, then should the bathing be general also. For a more extended treatise on bathing, and the use of water, as a remedial agent, the reader is referred to some good work on Hydropathy and the Water-cure Treatment, where he will find a full description

of the different kinds of baths and water applications, with special directions how and when to use them in treating the various diseases.

directions how and when to use them in treating the various diseases.

But in all cases of cold bathing, let it ever be borne in mind that the first and most important thing is to secure what is called A GOOD REACTION. This condition will be manifested by an increased cheerfulness, and by a gentle glow upon the surface of the body. To secure this, the water must be cold, the operation performed briskly, and the friction more or less vigorous, as the case may require. When the cold water first comes in contact with the skin, it usually causes the blood to retreat from the capillaries toward the center of the body. But this should only be temporary. The blood should return again quickly to the surface, and should bring along with it an increase of circulatory and nervous activity.

Should the cold bath, after all proper efforts, be followed by paleness of the skin, dullness and inactivity of both body and mind, with more or less chilliness, it is not likely to be useful, and should, for the time, be abandoned. In such cases—which are rare—it will be best to use tepid water, then that which is slightly cool, gradually lowering the temperature, until, in the course of a few weeks at most, the constitution may be so improved, that the coldest water can be used, followed by the desired reaction.

Finally, in order to derive the full benefit from bathing of any kind, and often any benefit at all, it is necessary to observe some system in the matter. Some people seem to think they can bathe indiscriminately in warm or cold water, and at any time of day that is most convenient. This plan, or rather want of plan, will not do. To many, such a course will be productive of more harm than good. For most persons, perhaps, immediately after rising in the morning is the best time, or as good as any, to take a cold sponge or shower bath. But there are some, particularly females, whose constitutions and general health are too feeble to allow of this. In the morning, the system is in a languid and less active condition, and is not so well able to produce a good reaction. Persons, therefore, of delicate constitutions or feeble health, would do better to defer the operation till the middle of the forenoon, when the system is usually in its best and most active condition. A great change for the better has often been found by adopting this plan. Bathing, like every thing else pertaining to the human system, is subject to certain laws. It is our duty to find out those laws, and then obey them.

A word with regard to the Turkish Bath and then I will close this subject of bathing. It is unnecessary for me to describe these baths; they are useful and even beneficial. The sudden shocks of the Turkish Bath should be avoided by those of a weak constitution or those having a weak heart. With this exception an occasional Turkish Bath is of value.

# DOMESTIC AND SANITARY ECONOMY.

EMBRACING MANY

## STANDARD AND VALUABLE FACTS

AND SUGGESTIONS RELATIVE TO VENTILATION; PURE AND IMPURE AIR; WATER; WATER SUPPLY; PURIFICATION OF WATER; CLEANSING; DRAINAGE; DISINFECTANTS; AND OTHER COGNATE SUBJECTS.

# PREFATORY.

THAT it is the duty of every person to live as long and as well as possible, not only in intellectual and spiritual health, but also in soundness and vigor of body, will not be questioned. That he who sins against his body, and allows it to come to premature decay, or who persistently refuses to inform himself in respect to measures preventive of disease, is as much a criminal as he who violates the ordinances of the State; and that while this is true of an individual, it is equally true of a community.

Furthermore, all experience has shown, that no investment of time or money is so certain to bring a rich return, as that devoted to the acquirement of a knowledge of the physical Laws of Health, and to the enactment and enforcement of Sanitary measures.

If it is desirable to know how to cure disease, it is much more important to know how to prevent it.

Impressed with these views, this treatise has been prepared for this work, and is herewith presented to the public.

# DOMESTIC AND SANITARY ECONOMY.

## VENTILATION.

THE *two* great requisites for the healthy existence of human beings, are, due and proper supplies of *pure air* and *pure water*. Without these, the most abundant food and all the appliances furnished by Science and Art, will be of little avail; and yet, by a singular inconsistency in human conduct, there would seem, says Dr. Bell, to be a fixed determination, on the part of the majority of mankind, to deprive themselves of these essential elements of health.

Of the two great requisites for healthy existence above named, air may be considered as the *prime necessity of life*. We can live more days without food or water, than we can live minutes without air. In order to understand fully the relation which air sustains to the vital economy, it is expedient to consider, *first*, the constitution of our atmosphere, and *secondly*, the office and function of respiration.

**Constitution of the Atmosphere.**—Atmospheric air consists essentially of nitrogen and oxygen,* mixed together in the proportion of four-fifths, by volume, of the former, to one-fifth of the latter. More correctly, the composition of air which has been freed from the presence of all foreign ingredients, may be represented by measure and weight, as follows:

| | BY WEIGHT. | BY MEASURE. |
|---|---|---|
| Nitrogen | 76·90 | 79·10 |
| Oxygen, | 23·10 | 20·90 |
| | 100·00 | 100·00 |

In addition to oxygen and nitrogen, the atmosphere always contains

*Oxygen is a gas, which, like the atmosphere itself, is without color, taste or smell. A candle burns in it with much greater brilliancy and rapidity than in common air. Animals, also, breathe in it with an increase of pleasure.

Nitrogen is also a gas, which, like oxygen, is void of color, taste and smell; but a lighted candle is instantly extinguished, and animals cease to breathe when introduced into it.

Oxygen is one-ninth part *heavier*, and nitrogen one-thirty-sixth part lighter, than common air.

small and variable proportions of carbonic acid gas and aqueous vapor, and very often minute quantities of ammonia, nitric acid, the aroma of flowers, and various other organic and inorganic products; in short, as the sea contains traces of almost every thing that is soluble, so the air contains traces of almost every thing that is volatile.*

The oxygen and nitrogen existing in the air are merely intermingled, and not chemically combined with each other; but their relative proportions never vary. This has been proved by the analysis of air collected upon the summit of Mount Blanc, and upon the Andes, at an elevation of 21,000 feet, by Guy Lussac, in a balloon; over marshes; in hospitals; over deserts, and at the bottom of the deepest mines.

The quantity of carbonic acid, on the contrary, being much influenced by local causes, varies considerably. The average quantity is 4.9 volumes in 10,000 of air, but is observed to vary from 6.2 as a maximum, to 3.7 as a minimum, in 10,000 volumes. Its proportion near the surface of the earth is greater in summer than in winter, and during night than during day. It also is rather more abundant in elevated situations, as on the summits of high mountains, than in plains. This is probably owing to an absorption of the gas near the surface of the earth, by plants and moist surfaces.

Notwithstanding a difference in the density of the principal constituents of the atmosphere—nitrogen, oxygen, carbonic acid, and the vapor of water—and notwithstanding, also, the absence of any chemical union between them, they are always, through the action of a beautiful law of Nature, known as the law of "the diffusion of gases," found uniformly mingled together. The operations, also, of combustion, respiration, vegetation, and the like, continually going on upon the earth's surface, remove great quantities of oxygen from the air, and substitute a variety of other gases, the principal of which is carbonic acid; yet so beautifully adjusted is the balance of chemical action in Nature, that no perceptible change in the composition

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* Carbonic acid is a kind of gas, which, like oxygen and nitrogen, is void of color; but, unlike them, possesses a slight odor and a perceptibly sour taste. Burning bodies are extinguished, and animals cease to breathe when introduced into it. It is one-half heavier than common air, and can therefore be poured through the air from one vessel into another. Carbonic acid is produced abundantly by the combustion of carbon (*i. e.* wood, coal, gas, etc.) in oxygen gas or atmospheric air; by respiration, fermentation, and by the decay of animal and vegetable substances. It exists, as above stated, in the atmosphere, and in the earth in immense quantities, chiefly in combination with lime, forming carbonate of lime (marble, chalk, etc.) By aqueous vapor is meant the steam, or vapor, visible or invisible, which ascends from a surface of water when exposed to the air. When water is spilt upon the ground in dry weather, it soon disappears; it rises in invisible vapor, and floats buoyantly among the other constituents of the atmosphere.

of the atmosphere has been observed since accurate experiment on the subject was first commenced.

Organic matter, of some kind, is almost always present in the atmosphere; but it not infrequently happens that chemical tests fail to detect it, when the sense of smell and a peculiar effect upon the human constitution give abundant evidence of its presence. This is especially true of the odoriferous matters of flowers, and the miasmata of marshes. Dew collected over rice fields often contains so much decomposing organic matter, as to become putrid after standing for a short time. Exposure to the night air of these localities, in the hot season, invariably produces in the Caucasian race malignant and almost incurable Fevers. The amount of organic matter in the air is always in direct proportion to the amount of carbonic acid.

The principal office which nitrogen appears to sustain in the atmosphere, is that of a diluent of the oxygen. If the quantity of oxygen in the air was increased much beyond its present proportion, the inflammability of most substances would be greatly augmented; and the functions of life would be called into such rapid action as to soon exhaust the powers of the system. Nitrogen being the most indifferent of all substances, and wanting in any poisonous qualities, dilutes the too active oxygen, and prolongs its action upon the system, in the same way as water dilutes and diminishes the stimulating action of spirituous liquors. Recent researches have also rendered it probable that the nitrogen of the air discharges an important office in respiration, by preserving the volume and tension of the cells and extreme tubes of the lungs.— *Wells' Principles of Chemistry.*

**Respiration.**—All animals, as already stated, require for their continued existence a free supply of atmospheric air. It is also necessary that this air should have free access to the interior of their structure, and the act or process by which this is accomplished is called *respiration*, or *breathing*. To breathe, in the usual acceptation of the term, is to draw in atmospheric air through the mouth and nose, into the lungs, and after a brief interval, to throw it out again. The organs by which the act of respiration or breathing is performed, differ essentially in different species of animals. In the lowest types of the animal kingdom, as the polypes, respiration is accomplished exclusively through the skin. Insects also draw in air into their system, or, in other words, breath, by means of organs called *tracheæ*, or windpipes — tubes which penetrate in various directions through their bodies, and terminate externally in little orifices called *stomata*. If we smear the body of an insect, as a wasp, with thick oil, we close up the stomata, and the insect speedily dies of suffocation. All vertebrate animals are endowed with localized organs of respiration, which are termed *lungs*, or *gills*. In man and the higher animals, the lungs

consist of two rounded, oblong, somewhat flattened masses, of very cellular substance, situated in the cavity of the chest, and communicating with the atmosphere through the windpipe, or tracheæ. The general form of the human lungs is represented in Fig. 8, page 812. The air or windpipe, 4, as it descends from the throat, branches off into large (bronchial) tubes, 5 and 6, and these again into smaller and still smaller, and finally into hair-like or capillary vessels. (For a minute description of the Respiratory Organs, see pages 811, 812, etc.)

In man the skin also is to some extent a respiratory organ, through which air enters and escapes, as it does from the air-vessels of the lungs, though less rapidly. When a portion of the skin has been burned, it is no longer capable of exercising the function of respiration, and the lungs are therefore obliged to perform extra duty, and suffer in consequence. Hence, diseases of the lungs are a frequent result of extensive burns.

The proportion of oxygen gas which atmospheric air contains, is very nearly twenty-one gallons in every hundred. After it has visited, however, the human lungs, this proportion is reduced to sixteen or eighteen in a hundred, and sometimes lower. The lungs, therefore, extract or absorb from the air which enters them, from one-seventh to one-fifth of its oxygen; and the absolute weight of the oxygen, thus introduced into the system in a day, is estimated to be equal to about one-fourth of the weight of the whole food, solid and liquid, which an animal consumes. The absorption of oxygen takes place in the minute air-cells of the lungs, through the thin, membranous walls of which it passes, by a process termed *endosmosis*, into the adjacent bloodvessels, and combines with the blood contained in them, imparting to it the bright scarlet color which is characteristic of arterial blood.

**Uses of Respiration.**—From what has been already said, it must appear evident that the principal object of respiration is to introduce the oxygen of the atmosphere into the blood; which last contains the nutritive portion of the food digested and assimilated in the stomach. Now, the purpose which oxygen subserves in the blood, is threefold:

1st. *It assists in building up the substance of the body.*

2d. *It assists in removing waste and effete matter from the system.*

3d. *The absorption of oxygen produces animal heat.* (See pages 845, and 846 for fuller statements concerning Respiration.)

Animals whose respiratory organs are small and imperfect, and which, therefore, consume but a comparatively small amount of oxygen, possess a bodily temperature but little elevated above that of the medium in which they live; animals, on the contrary, whose lungs

are large in proportion to their bodies, and respire frequently, possess the highest bodily temperature In man, the mean temperature of the body is about 98° F. The temperature of a healthy child, who consumes proportionally more oxygen and respires more frequently than an adult person, is somewhat higher, 102° F. In birds the temperature is from 104° to 108° F. The temperature of the same animal also at different times, varies with the activity of the respiration. When the blood circulates slowly, and the temperature is low, the quantity of oxygen consumed is comparatively small; when, on the contrary, the circulation by vigorous exercise or labor is accelerated, a large quantity of oxygen disappears, and the animal heat rises.

**What is Ventilation?** — The atmosphere by which we are surrounded, and *from which*, as already shown, our systems derive, by means of respiration, the oxygen or vital element of the air, is at the same time the great reservoir into which flow all the exhalations from the bodies of men and animals, and the gaseous products resulting from the decay of animal and vegetable substances upon the surface of the earth. These emanations, if allowed to accumulate upon the immediate surface of the earth, would prove destructive to all the higher forms of animal life; but Nature, through the agency of winds and currents, and through the process of the "diffusion of gases," * prevents such an accumulation of deleterious matters, and

* Every gas, or gaseous mixture, possesses the property of diffusing itself equally through every other gas with which it is brought in contact, and this, too, in opposition to the action of their weight, or gravity. Every gas, moreover, appears to act as void, or empty space for another; or, in other words, it spreads, or expands into the space occupied by another gas, as if it were a vacuum. The same law applies also to vapors. Thus, as much steam can be forced into a space filled with dry air, as into a space absolutely devoid of air, or any other substance. This force, or law, regulating the diffusion of gases, is one of great practical importance in the operations of Nature, and is often referred to as a most remarkable evidence of design on the part of the Creator. Thus, carbonic acid, which is a deadly poison when inhaled, is one and a half times heavier than common air. The atmosphere contains about one part in two thousand of this gas, uniformly diffused through it—the same quantity being present in air collected on the tops of the highest mountains and on the level surface of the earth. If the law which produces such a complete diffusion were suspended, this heavy gas would accumulate under the influence of gravitation as a bed or layer in the lower part of the atmosphere, and render the immediate surface of the earth uninhabitable. By reason of this same law of diffusion, the carbonic acid gas which is abundantly formed in every process of combustion and in respiration, and the noxious gases discharged from sewers, and from all decaying matter, are silently and speedily dispersed, and prevented from accumulating. The equitable diffusion of vapor of water through the atmosphere, in accordance with the same law, is no less important than the diffusion of gases. But for such diffusion, the whole surface of the earth would have assumed the condition of an arid desert. Water is 800 times more dense than air, yet the particles of water, in the form of vapor, ascend into the atmosphere, and diffusing themselves every-where throughout its substance, give rise to the phenomena of dew and rain. It is through the operation of this principle

distributes them equally through the whole atmosphere; from whence they are, in the main, removed through the action of vegetation. Now, the operations of man, consequent upon his civilization, are opposed to those of Nature in respect to the purification of the atmosphere. Cities, towns, houses, and apartments, which men build and live in, are barriers and obstacles to the free diffusion and penetration of air, and of the heat and light of the sun; they also become centers for the emanation of the poisonous exhalations arising from the functions of life, the decomposition of organic substances, and the results of economic or industrial operations. Now, the methods by which these exhalations are removed, and a free circulation of air necessitated, is *ventilation;* and the more complete it is in a community, the healthier are its inhabitants; while, on the other hand, its imperfection and neglect are sure to be productive of disease and mortality.

**How the Air we Breathe is Rendered Impure.**—To enable us to efficiently guard against the use of impure air, it is essential that we should have, in the first instance, a correct and clear idea of the sources from whence the impurities in question are most commonly derived; and to this point we would next direct attention.

The composition of the air which escapes from the lungs, is not the same as that which enters—about one-fourth of each inspiration being altered while in the lungs, and rendered unfit for subsequent respiration. This alteration consists, *first*, in the abstraction of the vitalizing element of oxygen—from one-fifth to one-seventh of the amount inspired being directly absorbed by the lungs; and *secondly*, by the addition of the gas, carbonic acid, which, together with volatilized animal matter, is given out by expiration, and passes into the outer and common atmosphere. A man of ordinary size, making fifteen inspirations per minute, vitiates, therefore, in this space of time, *about the sixth part of a cubic foot of air;* but this, mixing, as it escapes, with many times as much of the air around, renders unfit for respiration three or four cubic feet.

The amount of pure carbon thrown off the lungs of a full grown man in the form of carbonic acid, in a space of twenty-four hours, varies from 5 to 15 ounces; while the quantity which escapes from the skin (which is also an organ of respiration) during the same time, is estimated at from 50 to 60 grains. Now, carbonic acid, as has already been stated, is, in its pure state, wholly irrespirable, and produces, the moment it is inhaled, a spasm of the glottis, which closes at

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also, that we are enabled to perceive and enjoy at a distance the fragrant odors which arise from volatile substances; and were its action suspended, the sense of smell would be nearly unknown to us.— *Wells' Principles of Chemistry.*

once the air-passages of the lungs—an animal immersed in it, therefore, dies of suffocation. It possesses, moreover, direct poisonous properties, and may produce death, even when inhaled with a large admixture of air. Dr. Carpenter, the celebrated English physiologist, states, that air containing five or six per cent. of carbonic acid is speedily destructive of animal life; while Dr. T. Herbert Barker ascertained that an animal in an atmosphere containing only two per cent., will die in about two hours. Now, the usual proportion of carbonic acid in the atmospheric air is rarely as great as one part in a thousand; and when this is increased to one part in one hundred, its injurious effects begin to be felt by man, in headache, languor, and general oppression. But in the air exhaled from the lungs, the quantity of carbonic acid is never less than three per cent., and may rise as high as five, or even six per cent., and hence, if *exactly the same air* thrown out from the lungs were reinhaled, death would speedily ensue.

But carbonic acid, furthermore, is a substance which is constantly accumulating in the blood, and if it is not as constantly removed, death will also result from this cause. In fact, we may consider the process of breathing as but an instinctive effort of Nature to free herself from the presence of this poison. But air which has once been in the lungs will no longer perform this office, for the reason that it is already saturated with carbonic acid. Hence the necessity of inhaling fresh air at every breath. The importance of this is illustrated by the following extract from a recent publication on this subject, by the eminent English physician, Dr. Southworth Smith. He says: "Stop the respiration of an animal, or confine it to an air which has already been respired, and carbon accumulates in the venous blood and mixes with the arterial blood. In half a minute, the blood flowing in the arteries is evidently darker; in three-quarters of a minute, it is of a dusky hue; and in a minute and a half, it is quite black. Every particle of arterial, or red blood, now disappears, and the whole mass becomes venous, sensibility is abolished, the animal falls down, and in three, or at most four, minutes, the heart entirely ceases its action, and can never be again excited." Now, if effects are proportionate to their causes, and if an atmosphere impregnated with *five* per cent., or one-twentieth of its volume, of carbonic acid, will thus produce death in a few minutes, what must be the probable effect, for a series of years, over the much more minute proportions which must be present in every inhabited room where there is not a constant ingress and egress of air? It must lower the standard of health and shorten the duration of life.

But it is not by the exhalation of carbonic acid alone that we impair

the purity of the atmosphere which surrounds us. There is constantly discharged, by the lungs and pores of the skin, a large quantity of effete, decaying animal substance, in the form of insensible vapor, which we often see condensed in drops upon the windows of crowded rooms, railroad cars, etc. These drops, if collected and evaporated, leave a thick, putrid mass of animal matter, and the breathing, or re-inhalation of air containing these vaporous exhalations from the system, is believed to be quite as efficient in producing disease as carbonic acid itself. The amount of fluid matter exhaled in twenty-four hours from the lungs and skin of an adult, average size man, is about three or four pounds. The largest quantity ever noticed, except under extraordinary circumstances, was five pounds, and the smallest, one and two-thirds pounds. Two persons occupying a bed for eight hours, will impart to the sheets, by insensible perspiration, and to the air of the apartment by breathing, at least two pounds of watery vapor, charged with animal matter, in a state of decomposition.

Now, the Creator has provided for the constant and complete removal of all these poisonous exhalations of the lungs and skin, by causing the expired air and vapor to rise, by its increased warmth and consequent levity, quickly above our heads, and therefore beyond the reach of a second and immediate inhalation. The air which issues, for example, from the chest, is very near the temperature of the body, viz.: 98° F., and is, in consequence, lighter, bulk for bulk, than the surrounding air at any ordinary temperature; it therefore rises in the atmosphere as oil set free under water rises, and would be diffused and carried away by the winds, did we not, by impervious ceilings and tight walls, obstruct the operation of this beneficent law.

Many persons suppose that they fulfill all the laws of cleanliness, when they have bathed and washed the surfaces of their bodies sufficiently with pure water. But cleanliness, in its true comprehensive meaning, can not be carried out so as to meet the wants of the animal economy, unless the lungs and skin are equally as well bathed with pure air. "Our senses revolt at the mere offer of dirty water to drink; but Nature displays an equal repugnance when dirty—that is, impure—air is offered for breathing; and no less injustice is done to the lungs by the inhalation of foul air, in which are floating, at the same time, particles of fine dust, arising from different substances in manufacture, than would be to the skin, if, first, ditch or gutter water, and then sand and dirt, were sprinkled over it. The very idea of swallowing, or even tasting, the fluid substances ejected as excreta, or thrown off by disease from the body of another person, or even from our own, is abhorrent to all; and yet, how few scruple about receiving into their lungs, by respiration, the impure exhalations from the lungs

of every body in the same room with themselves! But they are doing more at this time: they are inhaling not only the foul air which escapes from the lungs, but, in addition, the cutaneous emanations of all present on such an occasion."

It is the presence of animal matter, in a state of decomposition exhaled from the skin, which gives to garments that have been worn too long, the characteristic foul odor which they possess.

In addition to the agencies already named, which tend to render the air we breathe impure, the means employed for illuminating our apartments are also sources of contamination. These affect the air like the process of respiration; *i. e.* they consume oxygen and produce carbonic acid. "A candle (six to the pound) will consume one-third of the oxygen from ten cubic feet of air per hour; while oil-lamps, with large burners, will change, in the same way, seventy cubic feet per hour. As the degree of change in the air corresponds to the amount of light evolved, it is plain that gas illumination alters the air most rapidly." An ordinary gas-burner is estimated to generate as much carbonic acid gas as the breathing of four persons—or more than one hundred and sixty cubic inches per minute.

The influence of the few green-house plants, that are usually kept in occupied apartments, upon the air, is probably very slight. The presence of plants in flower, in sleeping apartments, is, however, generally considered objectionable; and various ill effects produced by them in such situations have been noticed. These, if actually occurring, are probably due to the volatilization of certain volatile oils contained in the glandular vessels of the plants, many of which oils, in even very small quantities, are known to act powerfully upon the animal system.

**Practical Effects of Imperfect Ventilation.**—Having pointed out the most common agencies by which the air we breathe is rendered impure and unfit for respiration, we will now ask attention to some of the effects which modern Sanitary investigation have shown to result from imperfect or bad ventilation.

In New England, statistics show that agriculturists, who pass their days mainly out of doors, live to an average age of 64 years; while the average age attained to by persons who have in-door employments, is as follows: Shoemakers, 43; tailors, 42½; editors, 41; druggists, jewelers and teachers, 39 to 40; machinists, 38½; printers, 36½. Fresh air, therefore, almost doubles a man's life, while it more than doubles his capacity for enjoyment.

The annual mortality of the population of the State of New York, exclusive of New York city, is 8.8 in every 1,000; the annual mortality of the population of New York city is 36.9 in every thousand. Now,

in the testimony of the most eminent physicians of New York city, recently taken by the "Association for Improving the Condition of the Laboring Classes in the City of New York," it was affirmed by all who had given attention to the subject, that the chief cause of the increased mortality in New York, arose "*from the great number of inhabitants living with the smallest amount of air* that is necessary to keep life in them, and the smallest possible quantity of light with which they can see and get along with." These causes were furthermore proved to produce a much greater mortality than bad food or bad clothing, by the fact that people who live in the same way, with the same food and clothing, but in better localities, have seventy-five per cent. less mortality than those living in dark, unventilated places.

Dr. Meredith Reese, in his testimony before the same committee, laid down this proposition: "That the true criterion and best index of atmospheric impurity, in any city or other locality, is manifested in young children, whose greater susceptibility to morbid causes, by reason of their greater delicacy of structure, renders them the earliest victims of atmospheric poisons." Now, the infant mortality of the large cities and towns of this country, is shown by statistics to be increasing with terrible rapidity. In Boston, the percentage of the deaths of children under ten, doubled from 1830 to 1850; while in New York city, the deaths of children to each 100,000 inhabitants, has more than trebled since 1810.

The morbid effects of crowding, and deficient ventilation, are also well illustrated by comparison of the state of health of two wards in the city of New York. In 1856, in the Sixth Ward, there were 25,000 inhabitants, having 1,400 dwellings; and the deaths were 1,089. In the Fifteenth Ward, the population the same year was 24,046, living in 2,445 dwellings; and the deaths among them were 436.

But the evil consequences of crowding and defective ventilation, are not confined to the poor and destitute. Wherever people are brought together for religious worship, for amusement, or recreation, in the halls of legislation, in courts and school-houses, the neglect of ventilation is the rule, and attention to this paramount means of preserving health the exception.

Dr. Carpenter, from whom we have already quoted, illustrates the liability we are to suffer from the gradual accumulations of carbonic acid in the air we breathe in our apartments, by the following statement: "A man may be presumed to produce in 24 hours about 10 cubic feet of carbonic acid. Now, if he were inclosed in a space containing 1,000 cubic feet of air (such as would exist in a room 10 feet square and 10 feet high), he would, in 24 hours, communicate to

its atmosphere, from his lungs, as much as one part in 100 of carbonic acid, provided that no interchange takes place between the air within and the air outside of the chamber. The amount would be further increased, also, by the carbonic acid thrown off from the skin, the quantity of which may be considered as undetermined. In practice, such an occurrence is seldom likely to take place; since in no chamber that is ever constructed, except for the sake of experiment, are the fittings so close, as to prevent a certain interchange of the contained air with that outside. But the same injurious effect is often produced by the collection of a large number of persons for a short time in a room insufficiently provided with the means of ventilation. It is evident, that if twelve persons were to occupy such a chamber for two hours, they would produce the same effect with that occasioned by one person in twenty-four hours. Now, we will suppose 1,200 persons to remain in a church, or assembly room, for two hours; they will jointly produce 1,000 cubic feet of carbonic acid in that time. Let the dimensions of such a building be taken at 80 feet long, 50 broad, and 25 high; then its cubical contents will be (80×50×25) 100,000 cubic feet; and thus an amount of carbonic acid equal to one hundredth part of the whole will be communicated to the air of such a building, in the short space of two hours, by the presence of 1,200 people, if no provision is made for ventilating it. And the quantity will be greatly increased, and the injurious effects will be proportionably greater, if there is an additional consumption of oxygen, produced by the burning of gas lights, lamps, or candles. Hence, we see the great importance of providing for free ventilation, wherever assemblages of persons are collected together, even in buildings that seem quite adequate in point of size to receive them; and much of the weariness which is experienced after attendance on crowded assemblages of any kind, may be traced to this cause."

In modern houses, the neglect of ventilation is extreme, as far as regards recourse to any other means of obtaining it than the windows of the rooms. All the fireplaces, as they used to be called, are hermetically sealed by slabs of marble or metal; and when the register of the furnace flue, by which warm air is introduced, is closed at night, or when the room becomes too warm in the day, there is no aperture, either for the admission of fresh air from without, or for the escape of foul air from within. During the night, the windows and doors are closed, and the supply of air fitted for respiration becomes exhausted long before morning; especially if, as is so commonly the case, there are several persons sleeping in the same room. Headaches, restless slumbers, nervousness of various kinds, palpitations, oppressed breathings, and loss of appetite, are no unusual effects

of defective ventilation in the houses of the wealthy; who, at the very time, may be commiserating the poor for their small and close apartments.

"Both proprietors and builders of houses," says Dr. Bell, of Philadelphia, (from whose publications on Sanitary Science we have derived many of our illustrations), "are for the most part quite ignorant of all desirable knowledge in respect to ventilation. Divisions of rooms for business or family wants, and decorations externally after some order, Greek or Gothic, are the only things thought of in relation to modern structures. How the inmates are to procure an adequate and continual supply of fresh air, and how to get rid of that which is impure, are not even secondary matters; they are sometimes discussed as curious questions of philosophy, but seldom with a view to their direct bearing on health. Wearied, oppressed, and giddy, with palpitating hearts and hurried breathing, how many, after leaving church, have mistaken their really disturbed state of the physical man, for those which result from the workings of the spirit; and have returned to their homes, full of terrors for the state of their soul, when, in reality, they were suffering from a disorder of their corporeal functions, induced by impure and half-poisoned blood circulating through their veins?"

School-houses, furthermore, where most especially an efficient system of ventilation is needful, are also generally, and, we may say, cruelly neglected. The children who sit in them for many hours daily, require, above all other members of the community, a continual supply of fresh air for their healthy growth, and to allow of their tender brains being tasked without detriment and continual danger to their intellects. The originally indolent boy becomes, in an imperfectly ventilated school-room, a hater of lessons and of books; while the boy desirous to learn, and emulous of instruction, becomes exhausted by his brain-work, and his nervous system acquires a morbid sensibility, which remains with him during all his after-life.

Close bed-room air is held, by some eminent and recent medical authorities, to be the most efficient of known causes for producing Tuberculosis. M. Baudsloque, an eminent French physician, who has made part of the above-named disease a special study, says: "Invariably it will be found, on examination, that a truly Tuberculous disease is associated with a vitiated air; and it is not always necessary that there should have been a prolonged stay in such an atmosphere. Often a few hours each day is sufficient, and it is thus that a person may live in a most healthy country, pass the greater part of each day in the open air, and yet become Tuberculous, if he inherits such a tendency, because of sleeping in a confined place, where the air is not renewed."

Bad air in workshops and manufactories, besides directly inducing disease, is a very efficient agent also for promoting intemperance. The workmen inhaling impure air, experience, as the most common effect, a depression of spirits and a loss of appetite. The natural and obvious recourse, therefore, is to a stimulant; and the cheapest and most readily available one is alcoholic spirits. In addition to those already enumerated, other agencies, which constantly tend to impair the air we breathe, are the gaseous secretions given off by uncovered or improperly constructed and located sewers, drains, cess-pools, cellars, etc. This fact is so self-evident, that little needs be said in this connection, other than to illustrate, by evidence, the virulent and actively poisonous nature of the emanations in question.

In a series of investigations made a few years since in London, under the direction of the "Commissioners of Public Health," it was found that a mouse, exposed in a cage to the air of a cess-pool, within three inches of the surface, although it was well fed at intervals, died on the fifth day. Dogs thus exposed, suffered from Vomiting, Diarrhea, and Febrile Symptoms, Restlessness, and Loss of Appetite. One of the principal gases contained in sewer emanation, is sulphureted hydrogen; and it was found that so minute a quantity of this gas in common air as 0.056 per cent. (fifty-six parts in a thousand), was sufficient to produce serious symptoms, rapid and irregular respiration, extraordinary rapidity of the pulse, and Diarrhea. A puppy exposed to less than two per cent. of sulphureted hydrogen in common air, was destroyed in 2½ minutes, without a struggle; and so small a proportion as 0.428 per cent. killed another in an hour. But passing over any further description of the acute forms of poisoning by sewer-gases, when inhaled in their undiluted state, their general effects, when much diluted with atmospheric air remain to be noticed. These are, a general prostration of the vital powers. "The appetite," says Dr. Letherby, an eminent English authority on this subject, "fails; the bowels become disturbed; Diarrhea of a chronic character sets in; and the sufferer is either worn out by exhaustion, or he falls into a state of low Fever, from which it is difficult to raise him." The same authority also gives the following illustration of the poisonous effects produced by the inhalation of very small quantities of sewer-miasm, which is well worthy of attention for the lesson of caution which it furnishes. A small lodging-room in Paris, consisting of a bed-room and ante-room, was brought to the attention of the medical commissioners, from the circumstance that it had been successively tenanted by three vigorous young men, each of whom died within a few months after his occupancy of the place. On examination, it was found that a pipe from a privy on the upper

floor, ran down by the side of the wall, near the bed where the inmates slept. The pipe was unsound, and the wall was damp from leakage into it; but there was no perceptible smell from it. Nevertheless, the commissioners had no doubt that the deaths of the former occupants were referable to the emanations from the wall; and it resulted, that when the pipe was repaired, the unwholesomeness of the place was cured.

The air of houses is also liable to become impaired through foul emanations proceeding from cellars; this being especially the case where the reprehensible custom prevails of using the cellars as receptacles of most perishable products, vegetables, etc. Malignant Typhus Fever, in isolated farm houses, has often been traced to this cause. But it is not, however, necessary that the cellars of a house should contain decaying garbage to generate foul air, as air always degenerates when confined; and if it is merely in contact with the surface of earth charged with organic matter, it soon becomes saturated with exhalations detrimental to health. Every one must have observed the musty, "close" smell of the air that pervades perfectly dry closets and rooms in the upper parts of houses, which have remained shut up for any length of time; how much more impure, then, must be the air confined in cellars, which are almost always cold, damp, unclean, and moldy? "Many an invalid who fancies himself improved by a change of air, in going to another residence, is really relieved by escaping the moldy atmosphere which comes from beneath his own ground-floor."

**Means of Ventilation.**—Having noticed, in brief, the principal sources and agencies by which the air we breathe is rendered impure, and also the deleterious results which follow imperfect ventilation, we are now better prepared to inquire into the means of the cure and prevention of the evils described.

In the first place, unless sanitary measures have been taken to secure the purity of the external atmosphere by effective drainage, cleansing, and prevention of nuisances, no system of ventilation for the interior of our dwellings, churches, school-houses and work-shops can be successful. Assuming, however, that the purity of the external atmosphere is guaranteed, the next question that arises is, how great should be the constant supply of pure air to insure the preservation and continuance of health? Upon this point authorities differ. The lowest estimate given, as within the limits of safety, is *four cubic feet per minute, or two hundred and forty per hour.* Dr. Reid, who is regarded as the highest English authority on the subject, fixes on *ten cubic feet of pure air per minute* for the respiration of an adult person, as certainly quite low enough for an average of comfort and safety.

In a draft of a sanitary code recommended to the Legislatures of different States by the National Sanitary Convention, which assembled in New York city in 1859, it was provided that no house or apartment, intended for the constant occupation of not less than ten persons, or for the occasional assemblage of large numbers of persons, should be allowed by law to be used, or occupied, "unless the same shall be provided with ventiducts for supplying fresh air of a suitable temperature, which shall have a capacity of not less than one hundred square inches for every twenty-five persons, and in the same proportion for any greater or less number; or by some other mode capable of supplying fresh air to each person, at the rate of four cubic feet per minute;" and further, that each house thus occupied, shall be provided with "discharging ventiducts, which open directly into heated flues; or which are conducted into the outer air above the roof, and then terminated by a suitable cowl or cap, and which shall have a capacity of not less than two-thirds of that of the admitting ventiducts;" or, in place of this, "an open fireplace."

In judging personally of the amount of fresh air to be supplied to our houses, or apartments, the rule should manifestly be, not to limit ourselves to that supply which the constitution can bear or tolerate, but to that amount which will sustain the highest state of health for the longest time. The cheapest and most simple plan of ventilation is that which looks to the natural movements of the air, by a simple interchange between that of the interior of a house and the external atmosphere.

When there is an open fireplace in the room, a well-constructed window, capable of being opened above and below, realizes all the essential conditions for effective ventilation. This, however, will not answer when the weather is severe; and an open fireplace is, moreover, becoming a rare thing in city and town houses; its place being supplied by a stove, or, more generally, by a register for the admission of warm air from a furnace in the cellar or basement.

Another simple, but at the same time an efficient and most gentle mode of ventilation, is the admission of external air through a perforated zinc plate, or fine wire gauze, which is to replace a pane of glass in a window of the room to be ventilated. The plate is perforated with two hundred and ninety holes to the square inch. It, or the wire gauze, is generally introduced into the upper part of the window, and in the place of the corner pane, the farthest from the fireplace or heater. The fine orifices in the plate, or gauze, prevent the air from coming in with a rush, (which would occasion discomfort,) and they tend also to diffuse the air equally and gently through the apartment. No draft is felt, unless a person be seated immedi-

ately under the window. Besides the introduction of pure air from without into the room by this method, there is also, all the time, an interchange between the air without and the heated and impure air within, which latter thus finds vent, and is thus carried off. This interchange takes place on the principle of "the diffusion of gases," which has already been explained.

Another plan of ventilation still, based on the natural movements of the air, is by means of an opening in the walls or ceiling which lead to the external air, and which is protected by a shield or disk, say two inches larger than the aperture. The external air, in impinging against the side of this shield, is split up into a thin circular radiating sheet, and at a short distance below, not more than two feet, a person can not feel cold entering, nor can a hand detect a draught, at eight or ten inches distance from the edge of the disk. The sheet of air may be modified, according to the distance of the shield from the aperture.

In order, however, to render ventilation perfectly complete, and effectual, it is generally considered expedient to have the channel of exit for impure air independent of and separate from that which supplies fresh air. A simple opening between a room and the external air, will not, of necessity, produce a current of air. An interchange of air will certainly take place in virtue of the law of the diffusion of gases, but in order that a current may be established, a difference of temperature between the external and internal air must exist. Such a difference in reality almost always occurs, inasmuch as the air of a room is protected from external current, and often has its temperature raised artificially by heating arrangements, and by the breath and bodies of the persons present in it. But even then, if there is only an opening, the tendency is for the counter-currents to meet in their passage, and to conflict, and therefore to a certain extent to obstruct each. Therefore, separate openings for the ingress and egress of air are desirable.

In providing separate openings for ventilation in our apartments, it is necessary, however, to guard against directing streams or currents of air directly upon the persons who are to occupy the rooms; and it is not always readily accomplished. One of the simplest methods, is by means of opposite air-flues, or flues opening into the same apartment, in opposite walls; the flue on one side giving vent to the spent air at the highest level the room affords, and that on the other side delivering fresh air at the same high level. Another, and still more simple plan recommended, consists in simply bisecting the air-tubes, or outlets, by which a current of air is desirable. The bisecting consists in the introduction of a second tube within the first, so as to allow space

between the two. If a pipe, thus bisected, be arranged for the transmission of smoke, the smoke will be drawn up in a steady rapid stream on one or the other sides of the septum, and a downward current, more or less active, will be established on the other. "Smoky chimneys," says Dr. Corwan, the author of the plan, "for example, would be impossible, were these spaces properly subdivided; for no disproportion in the relative strength of either upward or downward currents would prevent their independent establishment. The short and ever smoking chimneys of small tenements and upper chambers, might thus be made efficient." A patent ventilator, known as "McKennall's," much in use in Great Britain, is constructed on this system. "It consists mainly of air-tubes arranged concentrically, the inner discharging the vitiated air, while the fresh supply flows down the outer tubes." This arrangement is said to produce an almost constant current, yet so gentle as to be scarcely perceptible.

In this country, the questions of warming and ventilation are almost always interwoven and related to each other; for the temperature of the climate during the major part of the year necessitates artificial warming; and whenever we have a fire, we have a ventilator.

Setting aside trouble and expense, the use of air furnaces, combined with the use of open fireplaces, furnishes the most healthy, simple, and comfortable method of warming and ventilating a dwelling-house. The former supplies a mild and pleasant atmosphere to all parts of the house, while the latter, by the heat imparted to the chimney, establishes a current, which draws air from the air-heating apparatus, and from the apartments after it has done its work.

Stoves afford the least ventilation of all our modes of heating. They take little more air than is just sufficient to consume the fuel, and that is withdrawn from the lower part of the apartment, where the air is purer, instead of the upper part, where the heated products of respiration tend to accumulate. Wherever stoves are used, some provision should be made for the ingress of pure and the removal of bad air into the apartment; and it is not sufficient to depend on the imperfect interchange of air, which takes place when doors or windows are casually open, or through the chance crevices or wind-cracks of the partitions.

The air supplied to hot-air furnaces, ought always to be drawn by means of pipe or flue from the exterior of the dwelling; and should never be taken directly from a basement or cellar.

Each room, from fifteen to twenty feet square, for the accommodation of from six to ten individuals, should have an opening for the escape of foul air of, at least, one hundred square inches area. An ordinary sleeping apartment for two persons, should have an outlet

of nearly the same dimensions. If the outlet communicate directly with the outer air, the rush of cold air inward may be obviated by making the communication terminate in a ventiduct, so arranged as to act exhaustively whenever the wind blows. An arrangement of this character, which has found favor in various parts of the country is known as "*Emerson's Ejector.*"

But the best method of providing for the exit of air from an apartment is to have a flue, or passage, with a ventilating valve, opening into a heated chimney flue. A valve of this character, in extensive use, and working well, is known as "*Arnott's Self-Acting Suspension Valve.*" It consists of a metallic flap, suspended in an opening, or flue, leading from the room to the chimney, and so balanced by a weight on an arm behind its hinge, that the slightest breath of air presses it back, while any reflex movement of the chimney current effectually closes it. All noxious air, therefore, in an apartment, caused by the breathing of persons, the combustion of gas, or other bodies for lighting, etc., is allowed, at once, in obedience to the chimney draught, to pass away; but no air or smoke from the chimney can return. When no force intervenes, the weight on the valve causes it to settle in a closed position. A flap, thirty-six inches square, is large enough, where there is a good chimney draught, for a full sized sitting-room, with company. It is essential, however, for the successful working of this valve, that the chimney draught be uniform and good; so that no more air shall enter the chimney over the fire, than can escape at the chimney throat above. Where a room is warmed by a stove, or furnace, there is little probability of any obstacle of this kind existing.

A modification of Arnott's valve, consists of a square piece of wire gauze, set into an opening, with a flap of oiled silk suspended behind it. The current into the chimney pushes back the pendant flap, while a reverse current drives it against the wire, and thus closes the aperture against the admission of fumes or smoke. If the orifice in a chimney made for arranging this valve, be deemed unsightly, it may be concealed from view by placing a picture at a little distance before it. A plan recently suggested by Dr. J. H. Griscom, of New York, for the ventilation of dwellings and other edifices, is said to be most efficient and easily applicable. The agency depended on in this plan, is heat, but no extra expenditure of fuel is required; the heat used being only the waste heat of the furnace by which the house is warmed. "The arrangement consists in the construction of independent ventilating flues in the walls of the house, in proximity to the hot-air tubes, so that the two may be connected together by means of a lateral or branch tube, by which a current of hot air may, at any

desired moment, be transmitted from the hot-air tube to the ventilating flue. By this means, the ventilating flues, which terminate in the open air, like an ordinary chimney, will be warmed by the hot air from the furnace, when the ordinary hot-air register is closed, as at night in a dwelling, or in a school-house, after school hours. If properly constructed, of brick or smooth stone, the walls of a flue will, after a current of hot air has passed through it a short time, become sufficiently heated to rarefy the air within, thus giving the flue a good ventilating power, even after the current of hot air has been withdrawn. For example, if the hot-air register of a parlor be closed at ten o'clock at night, and the heat, instead of being thrown back into the furnace, is allowed to pass into the ventilating flue, and so continue until six the next morning, it is evident that, during those eight hours, the interior of the ventilating flue must become thoroughly heated, so that the next day, when the current of hot air is restored to the parlor, the heated sides of the ventilating flue will continue to rarefy the air within for many hours, and, perhaps, even days afterward. There being no danger of a reaction of the air of the flue through the ventilating register (as is the case when ventilating openings are made in ordinary fire-flues), connections with the apartment to be ventilated may be made at any point, and even carried to the opposite side of the house, between the beams of the ceiling, to ventilate distant apartments. Dr. Griscom's method has the advantage of being applicable to all edifices warmed by hot air furnaces of any description, which, in general, are those most needing ventilation. This arrangement may be introduced into many houses already erected, by connecting the hot-air tubes with such of the ordinary chimney flues as are not used with fire. One of the principal advantages appertaining to this plan, is the capability of having a *large number* of ventilating flues put in connection with the furnace. In fact, the number may correspond with the number of hot-air registers, and thus any desirable amount and extent of ventilation be obtained."

The use of stoves and furnaces, which emit their heat through and from *red-hot iron*, is considered by all authorities as highly objectionable. Air, thus acted upon, is spoken of as *burnt air*, and seems to be dead and flat; but the chemical or physical change evidently occasioned in it by contact with a hot surface of metal, has not as yet been satisfactorily explained.

The use of artificial lights, especially of gas light, may always be turned to a useful account for the purpose of ventilating dwellings and public edifices, by suspending over the burner a truncated cone of zinc, perforated near its upper part by a tube of zinc, which, in turn, is connected by its other extremity with a chimney flue, or the outer wall.

The tube, by the action of the heat of the burner, becomes an efficient conductor for the air of the room, rendered impure by the processes of combustion or respiration. This mode of ventilation is particularly called for in small rooms, or shops, in which the air soon becomes contaminated, and exerts a noxious effect on those employed in them.

Cellars, from the circumstance that they are always liable to become sources and reservoirs of impure and offensive air, which ascends and permeates the upper apartments of the house, should always be thoroughly ventilated. One plan, recommended for this purpose, is to have an air-flue, or tube, lead from the cellar directly to the top of the house, the termination being provided with an ejecting cap, or cover. Another plan is, to extend a flue, provided with a ventilating valve, from a chimney down into the cellar. Some authorities recommend the disuse of cellars altogether, and the construction of houses entirely above the ground, with the lowest floor parallel with, or little above the surface of the earth.

**On the Supply of Moisture to Air Artificially Heated.**—The action of almost all the methods or arrangements in common use, for warming our apartments, is to parch and dry the air to a disagreeable and unwholesome degree. Yet, how to remedy the evil, and supply regularly to the heated air of our dwellings the exact quantity of moisture required, is a very difficult matter. Few persons are aware how much moisture must be added to cold air, introduced from without, and suddenly heated in a stove or furnace, to impart to it soft and agreeable qualities. (For the amount of moisture absorbed by air at different temperatures, see chapter on Water). The usual plan adopted, is to have on the stove, or in the furnace, a reservoir, or pan of water, fixed advantageously for evaporating. This, although it is almost always insufficient, should never be neglected; and the aim should be, to make the evaporating surface exposed to heat as large as possible. Another plan recommended, is to have an endless towel in the apartment, hung upon a roller, with its lower part dipping into a trough of water beneath. By turning this from time to time, a large wet surface may be kept constantly exposed for evaporation.

**Defect of Light.**—Next to the seemingly apparent determination to exclude fresh air from the habitations of man, is the equally apparent determination to prevent full access of light to the human body. Plants and vegetables, it is well known, when grown in dark places (as cellars, for example), are invariably bleached and sickly; and the vital activity of all vegetation, when screened from direct sun light, is always diminished. Now, the effect of the deprivation of light on the animal system, is, in all respects, similar and analogous; and so important is a full supply of light to the maintenance of human health,

that a distinguished sanitary authority has recently proposed, that it should be made, by law, a penal offense to deprive a neighboring dwelling of light. A few facts will serve to illustrate the truth of the above proposition:

When the eggs of a frog are put in water, in a vase with opaque sides and top, so as to exclude the light, they evince no change; whereas, eggs, in water of the same quantity and temperature, exposed to the light, undergo a gradual development, and produce, in due time, young tadpoles. If equal numbers of silk-worms are exposed in a light room and a dark room, many more larvæ will be hatched from the former than from the latter. It has also been observed, that persons living habitually in underground apartments, and in narrow alleys and deep courts, where access of the sun light is almost entirely prevented, are very apt to produce deformed and tuberculous children; and workers in mines are also liable to deformities and disease, beyond what can be accounted for by the other elements of their condition. Sir Andrew Wylie, for many years physician to the Emperors Alexander and Nicholas, of Russia, noticed, and published, the following curious fact: that in a certain barrack at St. Petersburg, the mortality on the dark side—that from which the sunlight was always excluded—was two hundred per cent. greater than on the side where the sun shone and penetrated into the windows and doors of the apartments. It has also been frequently observed in cities, during the prevalence of epidemic diseases, that the sickness and mortality was greatest on the sides of the streets that were, for the major part of the day, deprived of direct sunlight. The apartments of a dwelling house most constantly in use by the inmates, ought always to be those to which the direct rays of the sun have the most free access. Light is a germicide, *i. e.*, it kills some germs and inhibits the development and growth of others.

## WATER, IN ITS RELATIONS TO DOMESTIC AND SANITARY ECONOMY.

**Importance of an Abundant Supply of Good Water.**—Of the vast importance of an ample supply of water for family use, an impression may perhaps be best formed by imagining the horrors of a drought, in contrast with the comforts of an abundance of water furnished unstintedly; and it has been asserted by an eminent medical and sanitary writer, "that the measure of the comfort and health of a people, or even of a single household, may be judged by the approach to one or the other of these extremes, of the water afforded to and used by them." It has been noticed in London, Paris, and other great cities of Europe, where dwellings rise to the hight of five or six stories, up which it is impossible, by hand labor, to carry an ample supply of water, that suffering and sickness from the deficiency of water, are marked and decided; while nearer the

ground the inhabitants, who are better able to observe rules of cleanliness, and to use water more freely in every way, are, on this account, less prone to evils of many kinds.

In a report to the British Parliament, some years since, of a commission appointed to inquire into the health of English towns, the commissioners thus speak of the influence of an imperfect water supply upon the moral and physical welfare of manufacturing communities: "*Difficulty and labor in obtaining water, after a hard day's work, has a great effect on the economy, habits and health of the inhabitants of towns and cities; obstacles to the maintenance of domestic or personal cleanliness, soon produce habits of personal carelessness, which rapidly lower both the moral and physical condition of a whole population.*"

"If any doubt," says a late sanitary writer, "that simple cleanliness (which is unquestionably promoted by easy access to an abundant water supply), has an important influence on health, let them bear in mind the fact, that even a washed hog will fatten more than a dirty one in the proportion of five to three; and when such is the effect upon an organization which instinctively returns to wallowing in the mire, what may reasonably be expected of its importance to those in whom cleanliness is second only to godliness!"

**Sources of Water.**—The great and immediate source of water is the ocean, which collects all the water from the earth. Ocean, or sea-water, however, contains so large a quantity of common salt and other mineral substances, that it is rendered unfit for drinking, culinary, or washing purposes. The saltiness of the ocean is commonly attributed to the presence of vast beds of mineral salt at its bottom; this may account for some of the salt, but not all, for the sea undoubtedly owes some of its salt to washings from the land. The streams that have flowed into it for ages have been constantly bringing soluble mineral matters from the land and as pure water alone evaporates from the surface of the ocean, the quantity of such matter has been continually accumulating, until the whole ocean has acquired its present briny and bitter condition. The evidence on this point is conclusive; and the saline condition of sea-water is but an exaggeration of that of all ordinary lakes, rivers and springs. These all contain more or less of the mineral constituents of sea-water, but as their waters are continually changing and flowing into the sea, the salts in them do not accumulate. Again, every lake into which rivers flow, and from which there is no outlet, except by evaporation, is a salt lake; and it is extremely curious to observe that this condition disappears when an artificial outlet is provided. Examples of such lakes are the Dead Sea, the Caspian, the Sea of Aral, and the Great Salt Lake of Utah; the saltiness of all of which greatly exceeds that of the ocean.

The atmosphere, resting upon the ocean like a sponge, absorbs water from its surface, in a perfectly pure condition; and, as vapor, carries it from the equator to the arctic and antarctic regions; thus distributing it over the earth, north and south. The quantity of actual moisture, raised in the shape of vapor, from the surface of the ocean, is estimated to amount to no less than 60,000 cubic miles annually, or nearly 164 cubic miles per day. In the tropics, where the temperature of the atmosphere is very elevated, evaporation from the surface of the ocean goes on with wonderful rapidity.* In the vicinity of Calcutta, the evaporation from the sea is estimated at fifteen feet annually; between the Cape of Good Hope and Calcutta, it has been found during the months of October and November, to average nearly three-quarters of an inch daily; betwixt 40° S. L. and 20° in the Bay of Bengal, it exceeds an inch daily.

When air, highly saturated with moisture from continued evaporation, has its temperature from any cause suddenly reduced, its capacity to retain moisture is diminished, and like a sponge filled with water and compressed, the atmosphere pours out the water which its diminished capacity can not hold, in the form of rain, hail, snow or dew. The moisture thus precipitated upon the surface of the earth forms springs, brooks and rivers, and re-enters the ocean. "*All the rivers run into the sea, yet the sea is not full: unto the place whence the rivers come, thither they return again.*"

When atmospheric moisture is precipitated upon the surface of the earth, it sinks downward through the loose and porous soil, or rock, until it reaches a bed of clay, or rock impermeable to water. Here, it either accumulates and saturates the soil, or else running along the surface of the impervious stratum, it bursts out at some point where such impervious bed or stratum comes to the surface, in consequence of a valley or depression. In such a case, the flow of water constitutes a *spring*.

If, however, there are no irregularities in the surface of the impervious strata, so situated, as to allow a spring to burst forth, the water soaking downward, will not drain off, but will accumulate, and rise among the particles of soil, as it would among shot or bullets in a water-tight vessel. If now, a hole or pit be dug into such earth,

* Air absorbs moisture at all temperatures, but the capacity of air for moisture increases rapidly with its elevation of temperature. A volume of air at 32° can absorb an amount of moisture equal to the hundred and sixtieth part of its own weight, and for every 27 additional degrees of heat, the quantity of water it can absorb at 32° is doubled. Thus a body of air at 32° F. absorbs the 160th part of its own weight; at 59° F., the 80th: at 86° F., the 40th; at 113° F., the 20th part of its own weight in moisture. It follows from this that while the temperature of the air advances in an arithmetical series, its capacity for moisture is accelerated in a geometrical series.

reaching below the level of the water accumulated in it, it will soon be filled up with water to this level, and will constitute a *well*. The reason why some wells are deeper than others, is, that the distance of the impervious stratum below the surface is different in different localities.

In cases, where from the nature and conformation of the surface water can not be obtained from wells and springs, or the water furnished by them is bad, an abundant supply can generally be obtained from the heavens, which, with well constructed cisterns, filters, and ice, leave little to be desired, so far as domestic purposes are concerned. "Taking the annual rain-fall at 36 inches, we have 3 cubic feet of water falling upon a square foot of surface in a year. A cubic foot contains 6½ gallons, so that we get 18¾ gallons upon each surface foot annually. A house 25 by 40 has a thousand feet of surface, and collects nearly 19,000 gallons of water annually, which, if stored in cisterns of sufficient capacity, will furnish more than 50 gallons per day, throughout the year."

The following is an estimate of the average consumption of water, per head, in some of the chief cities, including not only what is drunk, but what is consumed *per diem* in domestic and manufacturing purposes; also for baths, stables, gardens, washing the streets, extinguishing fires, &c. By an inhabitant of Paris, 2½ gallons; of London, 20; of Philadelphia, 30; of New York, 40; of Boston, 43; of Edinburg, 19; of Glasgow, 27; of Vienna, Constantinople, and Montpelier, in France, 15; in all France, 5 gallons.

**Purity of Water.**—In nature, water is never found perfectly pure. Rain-water collected in the country after a long continuance of wet weather, is the purest natural water, but even this always contains atmospheric air, and the gases floating about in it, to the extent of about 2½ cubic inches of air in 100 of water. The use of rain-water is also liable to the objection, that, where it runs down the sides of houses into cisterns, it always becomes contaminated to a certain extent with impurities, as soot, dust, etc.

After rain-water, in the order of purity, comes river-water; next the water of lakes and ponds; next ordinary spring waters; and then the waters of mineral springs. Succeeding these are the waters of great arms of the ocean into which large rivers discharge their volumes, as the Black Sea, the water of which is only brackish; then the waters of the main ocean; then those of the Mediterranean and other inland seas; and last of all, the waters of those lakes which have no outlets, as the Dead Sea, Caspian, Great Salt Lake of Utah, etc.

Spring-water, although it may be perfectly transparent, always

contains more or less of mineral matters dissolved in it. The nature of these substances, will, of course, vary with the character of the soil through which the water percolates. The most usual impurities are *carbonate of lime*, *common salt*, *sulphate of lime* (*gypsum*), *sulphate and carbonate of magnesia*, *and compounds of iron*. Most spring-waters also contain a proportion of carbonic acid gas, which not unfrequently ranges from 12 to 20 cubic inches to the gallon.

When the waters of springs retain in solution so large a proportion of mineral matter, as to give them a decided taste, they are termed Mineral Waters, and are usually reputed to have some medicinal quality, varying with the nature of the substance in solution.

Waters which contain iron, in quantity sufficient to impart to them an *inky* taste, are termed *chalybeate*. The iron exists most frequently in the state of a carbonate—*i. e.* united to carbonic acid—and rarely in a proportion exceeding one grain in a pound of water.

Waters impregnated with sulphureted hydrogen, are termed *sulphurous*, or *sulphureted*. They may be readily recognized by their nauseous taste and smell. Remarkable springs of this kind exist at Sharon, N. J., and also in Virginia and Kentucky. Sulphureted hydrogen is not contained in waters ordinarily drunk, and appears to be formed under two circumstances: first, it occurs apparently through the decomposition of sulphides, which exist in the rocks through which the water flows; in the next place, it exists in waters where animal and vegetable matters are allowed to remain in contact with the salts called sulphates. Some spring waters contain larger quantities of sulphureted hydrogen than our foulest sewer-waters, and yet are drunk medicinally and with impunity.

Springs, whose waters contain a large proportion of earthy, or alkaline salt, are called *saline*—though the term is generally applied to particularly designate springs containing common salt.

**Relative Fitness of Waters for Use.**—One can hardly overrate the importance of a full supply of pure water, to meet the requirements of health, whether we look to the individual, or to the congregated numbers in cities and populous districts. Water, in an average state of purity, is indispensable for digestion, and the elaboration of good blood; as, on the contrary, if it be hard, and contaminated with animal and vegetable matter, it perpetually disorders digestion, and gives rise to the innumerable secondary affections of the kidneys, skin, and nervous system, and an impairment of bodily strength and activity. It is important, therefore, to discuss briefly, in this connection, the relative fitness of various waters for use.

It has been already stated, water, in nature, is never perfectly pure. It is, perhaps, hardly correct, however, to designate the small quanti-

ties of mineral matter, which are always present in ordinary drinkable waters, as impurities, inasmuch as they have never been proved, when existing in minimum or average proportions, to do harm. It is only when their quantity rises above a certain standard that they can be regarded as injurious. The human blood, in its normal condition, contains 420 grains of mineral matter to the gallon; yet, if a physiologist were to say, that this quantity was an impurity, he would be laughed at for his assertion. If the quantity of mineral matter in the blood exceeds, however, 420 grains to the gallon, then it would most certainly be regarded as an impurity, and would prove injurious.

Any water which contains less than *fifteen* grains of ordinary *mineral* matter in a gallon, is considered as comparatively pure, and may be employed for all domestic purposes, provided it does not contain too large a proportion of organic matter.

Spring-waters which issue from, and flow over, granite, or other hard rocks of like character, are generally remarkable for their purity. A noticeable water of this character, is that of the river Loka, in Sweden, which flows mainly over granitic rocks, and contains only 1-20th of a grain (0.0566) of solid mineral matter in a gallon, weighing 70,000 grains. Such instances are, however, very rare; but water containing as little as 4 or 5 grains of solid matter to the gallon, are not unfrequent. The average of mineral matters per gallon, in the well and spring waters generally used for domestic purposes, ranges from 10 to 30 grains. Water, of which a gallon contains 60 grains of ordinary mineral matter, may still be good for drinking; but it is not fit for cooking vegetables or washing linen, when it contains 8 grains to the gallon, of either lime or magnesia. The water of the celebrated Congress spring, at Saratoga, contains 611 grains of mineral matter to the gallon, and the water of the ocean, 2,500 grains.*

The following is a ready method of estimating approximatively the quantity of mineral matters contained in water: Take a measured quantity of water and boil it in an evaporating basin; the water will at last entirely disappear, and the inorganic matters will be left at the bottom of the vessel. By taking two or three waters, and thus treating them, we can judge, within a little, of their relative purity. We may judge also, to some extent, of the quantity of organic matters present in water; for, according as these are present, the precipitate left after evaporating will be of a dark and dirty color.

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* The following are the average quantities of mineral matter found, by analysis, to exist in some of the waters extensively used in the United States for drinking and domestic purposes: Croton water of New York city, 6.6 grains per gallon; Brooklyn water, 2.6 do. Cochituate, Boston, 1.2 do.; Schuylkill, Philadelphia, 4.2 do.; Delaware river, 3.5 do

The most universal and important mineral substance occurring in spring, well and river waters, is lime. This mineral exists in almost all soils in combination with carbonic acid, as carbonate of lime, or common limestone; and it is also very common in the form of sulphate of lime, (lime in combination with sulphuric acid,) which is also known as gypsum, or "plaster of Paris." Pure water dissolves carbonate of lime to a very slight extent only; but water containing carbonic acid (and nearly all spring waters, as has been already stated, contain this gas,) dissolves it freely, in proportion to the amount of the gas present. Thus it has been found that one gallon (70,000 grains) of *pure water* will not dissolve more than two grains of carbonate of lime; but by the addition of carbonic acid, it acquires the power of dissolving ten, twenty, or sixty grains, as the case may be.

Waters which contain much lime, are often bright and sparkling to the eye, and agreeably sweet to the taste. They are also known as hard waters, from their property of curdling soap. When waters containing lime held in solution by carbonic acid are boiled, the carbonic acid is gradually driven off by the heat, the carbonate of lime falls or precipitates, and the water becomes softened. This is the source of the white *fur scale*, or incrustation, which gradually accumulates upon the inside of kettles, or boilers, in lime districts.

The presence of carbonate of lime, thus dissolved in water by the agency of carbonic acid, may be easily detected by the addition of lime water, (slacked lime dissolved in water). The lime unites with the carbonic acid, which holds the carbonate of lime in solution, and forms with it a fresh portion of carbonate of lime; and as this salt is nearly insoluble, it falls down in the form of a white powder; and not only the carbonate of lime that is formed, but that which was previously held in solution, is deposited also; and thus the water loses all its carbonate of lime. The objection to this plan for practically removing lime from water to be used for drinking purposes is, that there is likely to be an excess of the slacked or caustic lime used, the presence of which renders the water disagreeable and corrosive. For washing waters, and, indeed, for most culinary purposes, the plan is unobjectionable.

The presence of sulphate of lime in water may be detected by adding to the water a few drops of *nitrate of baryta*. The sulphuric acid in combination with the lime leaves it to unite with the *baryta*, and forms a white, insoluble precipitate. Water rendered hard by the presence of sulphate of lime, may be softened by the addition of potash, or soda.

The use of waters impregnated with lime for drinking, is generally supposed to have a tendency to produce derangement of the digestive,

absorbent and secretory organs, resulting in various forms of disease, as Dyspepsia, Constipation, and Urinary Calculi. Such effects are experienced more especially by persons previously unaccustomed to the use of such waters; as in the case of those removing from the granite soils of New England to the limestone regions of the Western States. It has also been observed of the Cholera, that while it rarely, if ever, visits granitic districts, its most terrible ravages have occurred in regions underlaid by limestone, and where the waters are of necessity abundantly impregnated with lime. Mr. Youatt, in his well-known work on the "Horse," observes "that hard (lime) water, drawn fresh from a well, will assuredly make the coat of a horse, *unaccustomed to it, stare*, and it will not unfrequently gripe and otherwise injure him. Instinct, or experience, has made even the horse himself conscious of this; for he will never drink hard water if he has access to soft; but will leave the most transparent water of a well for a river (although the water may be turbid,) and even for the muddiest pool." On the other hand, some authorities consider waters containing a moderate proportion of saline matters, especially of salts of lime, as preferable for drinking purposes, on the ground that they furnish, in a degree, the mineral food required by the osseous system and the blood; and of which it is alleged that the supply afforded by solid foods alone, is not in all cases sufficient. An opinion has also been advanced, that the low conditions of vitality frequently manifested in the inhabitants of the Swiss valleys, is, in a great degree, due to the extreme purity of the waters drank; these being derived from streams fed by melting snows, which flow over granitic rocks.

The presence of magnesia, in any considerable quantity, in drinkable waters, is undoubtedly very injurious, and in Switzerland is supposed to give rise to the frightful diseases known as "*Goitre*" and "*Cretinism.*" *

Chloride of sodium (common salt,) and oxyd of iron, are almost

* In regard to the influence of lime and magnesia in drinking waters on the physical system, a recent writer on this subject, Dr. W. P. Seymour, of Troy, N. Y., makes the following sensible remarks: "It is, perhaps, not easy, in the experience of individuals, to show that the presence of lime or magnesia in drinking waters is the direct occasion of disease; but as water contributes to most of the transformations which occur within the body, it is reasonable to suppose that any constituent which interferes with its solvent power, will modify materially its effect, not only in the processes of digestion, but in the more subtile and equally important metamorphoses which are constantly taking place, by its aid, in every living tissue." Experience also establishes the correctness of these views. It is well known to medical men that Stone and Gravel are vastly more common in limestone regions of the West, than in other sections of our country where softer waters abound; and it is even apparent to the ordinary observer, that persons in whom Affections of the Kidneys are once established, are remarkably sensitive to the difference which exists between waters in this single element of hardness.

always constituents of spring and river waters. Their presence in small quantities cannot, however, be considered objectionable.

The quality of "freshness," or "briskness," of water, which is necessary to render it really drinkable, is due to, and increases with, the amount of air and other gases (especially carbonic acid) held in the water. The quantity of these gases absorbed by water, varies with its temperature, and also with the pressure of the atmosphere—cold water dissolving and retaining a larger proportion than warm or tepid water. Where cold waters from springs or fountains are exposed to warm air, they become elevated in temperature, and the gases contained in them escape, rendering the water flat and insipid. Waters highly charged with carbonic acid gas actually sparkle when agitated, like Champagne wines, and from the same cause. For drinking purposes, no water can have too much of the gases, unless of sulphureted hydrogen, the offensive odor of which is sufficient to exclude it from common use.

Most of the beverage sold as soda water is improperly named; it should rather be called effervescing water, for it has not a particle of soda in it; it is merely water with carbonic acid forced into it by using mechanical pressure, as that of a condensing syringe, or a powerful force-pump. The water, by this treatment, will effervesce violently when poured out; have a brisk, agreeable, acerb taste; and, although in other respects an acid, is not sour. If a little soda had been dissolved in the water previous to its impregnation, the result would be pure soda water.

Waters containing any considerable proportion of organic matter are considered unwholesome, and should be carefully avoided. The best authorities lay it down as a rule, that waters containing *six* grains of organic matter to the gallon, are not fit for any domestic use; if this limit is exceeded, they act disastrously upon the animal economy.

The organic constituents of water are of two kinds: living and dead. "In almost all waters of lakes, ponds, and rivers, living creatures of a *sensible size*, as fish, frogs, shell-fish, slugs, worms, etc., are to be found; and some of these also in the water of certain wells and springs. Although these animals impart their secretions to the water in which they live, yet these are either simply saline, entering like other saline substances into solution in the water, and no more hurtful, or so far as they are organic, they are in a condition in which they rapidly decompose into the simplest and equally innoxious compounds. The creatures referred to, moreover, by subsisting on those smaller than themselves, and by, in many instances, consuming animal and vegetable matters in the earlier stages of decay in the water, unquestionably preserve it in a purer state than it would otherwise possess. Thus, the popular opinion respecting the advantage of having frogs or fish in wells and springs, is correct; and, on a larger scale, though far less effectually in the comparison, the creatures named contribute to the purity of lakes and streams." But in addition to the living organisms of sensible size, above named, which are found in most river waters, and in many lakes, wells, and springs, there are others, so minute as to be often invisible to the naked eye, such as animalculæ, and microscopic algæ,

or water plants, and some of the pathogenic bacteria, such as the bacillus which causes Typhoid Fever. Many of these minute forms of animal and vegetable life, are probably no more injurious, so far as the quality of the water in which they live is concerned, than the organisms of sensible size before named; but there is this significant and important remark to be made concerning them, and that is, that they are the most numerous where there is the greatest amount of impurity, and are a measure of the greater or less objectionable nature of a water for drinking purposes; so that, although the living microscopic creatures may not themselves be injurious, the water they live in most probably is; of course the pathogenic bacteria are dangerous exceptions.

Waters containing minute, plant-like bodies, resembling flocculi, or filamentous bits, or shreds of textile substances, are accounted dangerous —the organisms in question being often half-developed forms of some low fungus. In 1854, when the Cholera visited London, the mortality among the inhabitants of a limited district of that city, who used water from a particular pump, was excessive; some five hundred dying in a single week. The water afforded by this pump, when examined by order of the authorities, showed nothing remarkable but the filament above named; but these filaments were also showed to be similar to the flocculent fungi which exist in almost all sewer-water; and further subsequent investigation revealed the fact, that the well supplying the pump in question, had been for some time in partial communication with the cess-pool of an adjoining house. This was in 1854. In the light of our present knowledge, all this is readily explained; the cholera bacillus grows in water, and this particular well, being in direct communication with a cess-pool, received all the excretions (which are alive with the cholera bacillus) of cholera victims; hence all who used water from this well contracted the disease. Modern bacteriological methods would have readily demonstrated the presence of the extremely minute *cholera bacillus* in this water. This shows the importance of using filtered and boiled water for drinking purposes, during epidemics, especially of Cholera and Typhoid Fever, and if one would be on the safe side, at all times, he would only drink water thus purified. Water may appear ever so clear and clean, and yet contain hosts of these bacteria. Boiling is the only sure way of destroying them.

Dead organic matter existing in water is of two kinds. It is either in the form of disintegrated insoluble matter, or it is dissolved in the water. The first you can discover with the aid of a microscope. Thus, if you examine a portion of sewer-water, you will find that it abounds with portions of dead animals and plants. These organic substances, then, cannot be affirmed to be specifically injurious (neither are they injurious when entirely decomposed, and have entered into new compounds); but it is while they are in a state of change that they act injuriously. They then act as *ferments*, and communicate the state they are in (*i. e.*, of decomposition) to other bodies with which they come in contact.

When the organic matters are dissolved in the water, they cannot

be found with the microscope, and their detection is a matter of some difficulty. The chemist estimates them by the quantity of nitrogen which he obtains from the deposit of water which has been evaporated; but this method is only practicable to the expert. A very good rough test for ascertaining the presence of this dissolved matter, is the *permanganates of potash and soda.* Permanganic acid and the permanganates contain large quantities of oxygen; and when they are brought in contact with organic matters, they lose their oxygen and become changed in color. If you take permanganate of soda, which is sold by druggists under the name of "*Condy's Disinfecting Fluid,*" and put it into pure water, it produces, first, a deep violet, and afterward, a beautiful permanent red color. If the water, however, contains organic matters, the red color soon disappears; and, in proportion to the quantity of organic matter, will be its discolorizing agency. Now, if you take a series of waters of different degrees of impurity, you will find that the water which has the least organic impurity retains the most color. As a simple rule, reject the use of a water which, on mixture, discharges the color to any considerable extent from permanganate of potash or soda.

Organic matters, in waters, derived from decaying animal substances, are much more injurious than those derived from decaying vegetable substances. Because a water is clear, cool, and sparkling, it by no means follows that it is the most suitable for drinking. In fact, these very qualities render such a water liable to suspicion; especially if it be drawn from a well in a city, or populous town. The sparkling, in a great degree, arises from the carbonic acid gas contained in it; and in many cases, this carbonic acid is derived from the decomposition of animal or vegetable matter. Its cooling taste may also be indicative of an impure origin, as it often arises from the formation of salts, which are only derived from the decomposition of organic matter. The presence of salts known as nitrates* in a water, especially impart to it a cooling, grateful flavor; but the presence of these salts is also a most certain indication that the water is impure, and contaminated with effete animal matter. In Great Britain, it has been frequently noticed, that the most popular waters of towns and cities are those drawn from wells sunk in the vicinity of old and crowded church yards; the coolness and "sparkle" which renders them popular, being due to the nitrates and carbonic acid derived from the remains of decayed humanity. From this kind of impurity the water of deep wells, and especially of wells cut into rocky strata,

* The nitrates consist of nitric acid (aquafortis), combined with lime, magnesia, etc Saltpeter is nitrate of potash, consisting of nitric acid combined with potash.

are generally entirely free. They frequently contain mineral matters in abundance. They do not contain organic matters. Hence water derived from such sources, is preferable for drinking purposes, to waters drawn from sources near the surface of the earth.

Of all waters, those of stagnant pools and of marshes most abound in foreign and deleterious materials, especially those of an animal and vegetable origin. They commonly retain and emit mephitic gases, and are to be regarded as always extremely unwholesome. "In the way of rendering marshy waters less unwholesome, the substitution of an active for an effete vegetation is advantageous, as diminishing both the decaying matters and the noxious gases; and the growth in them of plants of a bitter and astringent kind, as boy-bean and tormentil, is said greatly to lessen the tendency to diseases in cattle drinking their waters."

River waters are, in popular estimation, generally considered impure; but it should be kept in mind, that very many of the impurities of such waters are purely of a mechanical nature—such as particles of earth and sand washed from the land—which have nothing to do with the chemical constitution of the water, and are easily separated by the simplest form of filtration. River-waters, however, which receive the sewerage of large towns or cities, and the drainings of large manufactories, as print-works, dyeing establishments, etc., should always be avoided for domestic purposes.

**Purification of Waters.**—Various methods have been adopted to correct the impurities in waters, intended for drinking and domestic purposes. Water in evaporating, leaves its impurities behind. Steam condensed produces distilled water, or water in its purest state. A tube of copper, glass, or gutta-percha, connected with the spout of a tea-kettle, and surrounded by cloths kept saturated with cold water, affords a rude but convenient method of preparing distilled water. Such water is not, however, palatable for drinking, until it has been allowed to reabsorb the air which has been expelled from it, by the action of the heat in distilling; a little common Salt should be added to it also.

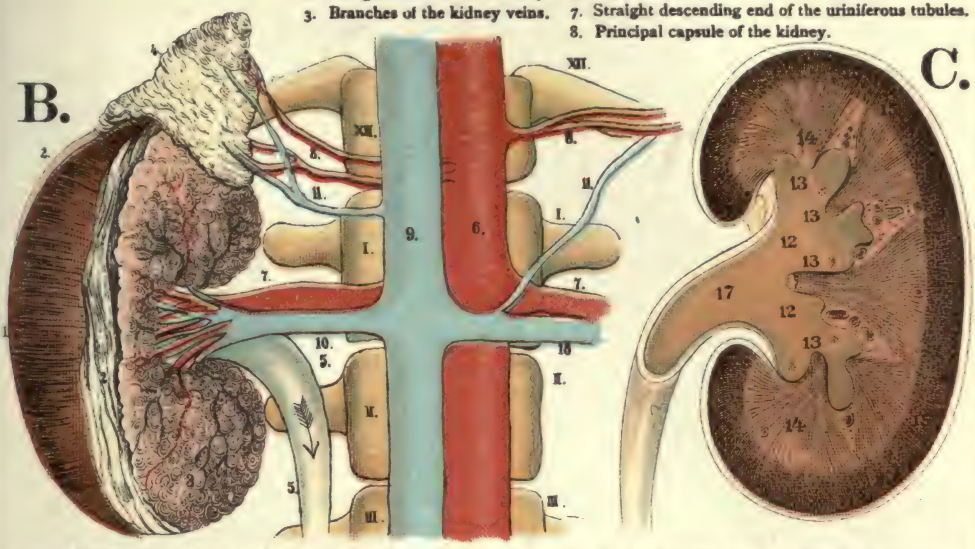
Water, in freezing, tends to separate completely from every thing which it previously held in solution. Even the air contained in water, is expelled in the act of freezing, and, becoming entangled in the thickening fluid, gives rise to the minute bubbles generally observed in blocks of ice. For a like reason, the ice formed by the freezing of sea-water, is, under all ordinary circumstances, fresh, and entirely destitute of salt.

When rain-water, drawn from cisterns, is to be employed for drinking and culinary purposes (and by many it is preferred to all other waters for these purposes), the first rain which falls, and which

# ORGANS OF DIGESTION.

## D,—Structure of the Kidney.

1. Branches of the kidney artery.
2. The glomerules of the kidney.
3. Branches of the kidney veins.
4. Beginnings of the uriniferous tubules.
5. Long, descending loops of the uriniferous tubules.
6. Ascending loops.
7. Straight descending end of the uriniferous tubules.
8. Principal capsule of the kidney.

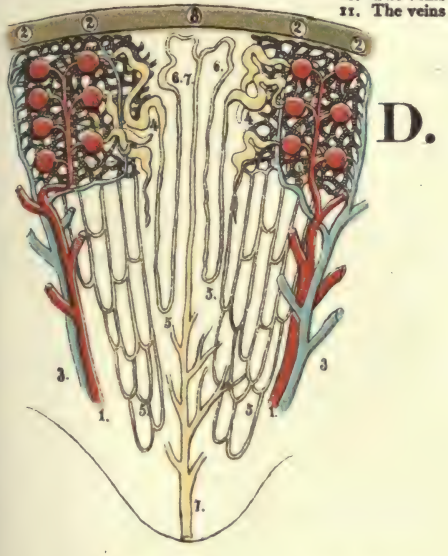


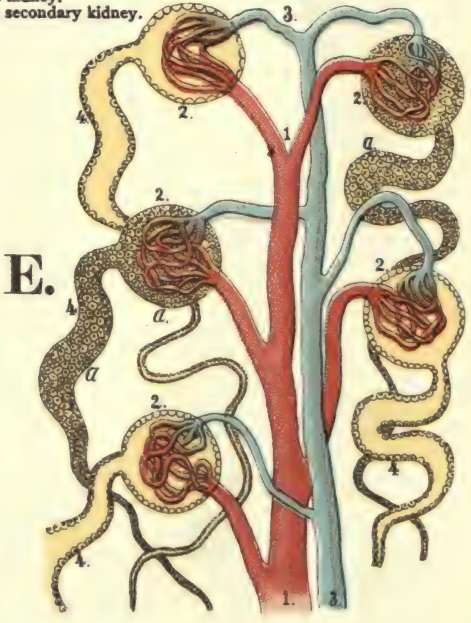

## B—Right Kidney and Secondary Kidney (Suprarenal Capsule).

XII. Dorsal vertebra and the last rib.
I, II, III. Joint of the loin.
1. Kidney, external border.
2. The capsular membrane covering of the kidney.
3. The fatty capsule of the kidney.
4. Secondary kidney (suprarenal capsule).
5. The uretor.
6. The abdominal aorta.
7. The arteries of the kidney.
8. The arteries of the secondary kidney.
9. Lower vena cava.
10. The veins of the kidney.
11. The veins of the secondary kidney.

## C—Left Kidney in Longitudinal Section.

12. The renal calixes.
13. Papillae and fine openings of the uriniferous tubules.
14. The Malpighi pyramides (in the medullary tissues)—straight end of the uriniferous tubules.
15. Boundary tissues and loops of the uriniferous tubules.
16. Cortical tissues and the beginnings of the uriniferous tubules.
17. The pelvis of the kidney.




## E—Glomerules of the Kidney (greatly enlarged.)

1. Kidney artery.
2. Glomerules of the kidney, enclosing a tissue of fine capillarae.
3. Kidney vein.
4. Beginning of the uriniferous tubules, which, together with the glomerules (as shown under a), are lined with cells.

contains the washings of the roof, should always be allowed to run to waste; a method by which the deterioration of the water afterward caught is almost wholly avoided.

The foreign substances contained in water, and which are regarded as rendering it impure, may be divided into two classes, viz.: those mechanically suspended in the water, as finely divided earthy matters and minute particles of animal and vegetable substances; and secondly, various dissolved substances, which contaminate the water notwithstanding it may be clear to the eye, and seem perfectly pure. The first-named substances—those mechanically suspended in the water—may be, for the most part, easily and cheaply removed by filtration through sand, gravel, or charcoal. The two first may be said to be the great natural filtering media; the freedom of water, gushing out from beds of clear sand and gravel, from all mechanical impurities, being proverbial. A most simple arrangement for artificially taking advantage of the filtering properties of sand and gravel, may be constructed as follows: Divide a cistern, or tank, of any convenient size, into two compartments, by a partition which does not quite reach the bottom; substituting a strip of coarse cloth, or flannel, for the intervening space between the bottom of the partition and the bottom of the tank; then fill up one of the compartments with layers of sand of different degrees of coarseness, the finest being at the bottom. When water is admitted, or allowed to flow slowly into this latter compartment, it trickles through the layers of sand, has its impurities strained from it, and rises clear in the other compartment. After a time, the sand gets clogged with sediments, and needs to be removed.

Some consider it an advantage, in filtering, to compel the water to ascend through the media, rather than descend; inasmuch as the weight of the impurities tends to oppose their ascent, and they are, therefore, more likely to be left behind. The principle of such an arrangement is represented by a tank, in which the first partition does not quite reach to the bottom. The middle division has a perforated bottom of wood, or metal, above which is placed a coarse cloth, then a layer of sand, to be succeeded (if deemed desirable) by a layer of powdered charcoal; the media being kept in position by a perforated board or sheet-iron plate. In the partition above the filter, is an aperture through which the filtered water passes into another compartment, from whence it can be drawn off by a faucet. But the principle of filtration is so simple, that any vessel can be adopted for the purification of water, tall ones being preferable to shallow. Beside sand, porous stone, powdered glass, flannel cloths, sponge, etc., can be used as filtering media. But by far the best substances that

can be used for filtration, are charcoal—*i. e.*, powdered wood charcoal, powdered coke; and animal charcoal (derived from burnt bones); the latter being by far the most effective agent. Sand and like substances do little more for the purification of water filtered through them, than to strain out mechanical impurities; but charcoal does not only this, but also removes coloring matters, organic substances, offensive gases, and, to a certain extent, mineral salts held in solution in the water. The foulest sewer, or stagnant water filtered through a moderately thick layer of charcoal, comes out sweet, clear and bright. Animal charcoal, moreover, filters about three times and a half more rapidly than sand, or other similar substances.

When the impurities of water are in a state of solution, their removal is a matter of no little difficulty; filtration, except through animal charcoal, removing but a small percentage of them. Boiling the water, destroys animal and vegetable matter, and, consequently, all taste and odor dependent on this cause; it also precipitates some of the mineral matters which are held in solution in the water, by the presence of carbonic acid. Boiling the water, however, by expelling the air and gases contained in it, renders it exceedingly flat and unpalatable. Water, contaminated with animal and vegetable matter in considerable quantity, is endowed with the power of self-purification. The action of the oxygen of the air generates a species of fermentation, whereby the organic matters contained in the water become oxidized, deprived of both odor and color, and precipitated in part as sediment. The water of the river Thames, contaminated with the sewerage of London, is a remarkable illustration of this fact; taken on board ship, it is at first nauseous, but after standing in casks for a few days, it becomes sweet and wholesome. To drink water, however, of this character, while undergoing the described fermentation, is considered highly dangerous. The following way of purifying water containing organic matters, has recently been patented in England, and is said to be very efficacious. It consists in suspending in a tank or reservoir containing this water, iron wire, of about one-sixteenth of an inch in diameter, loosely packed in bundles or coils, in the proportion of about one pound weight of such wire to every one hundred gallons of water. The water is allowed to remain in contact with the iron from twenty-four to forty-eight hours, according to the rapidity with which the precipitation of organic matter occasioned by such contact takes place; and is then filtered through sand, or any other convenient media. The quantity of organic matter in water is always greatest in summer, and disappears for the most part when the temperature of the water sinks to the freezing point. Neither filtering, nor any of the other methods described for purifying water, except boiling, will destroy bacteria; nor does freezing kill them. So that water suspected of containing bacteria should not be used without boiling, and ice used for direct cooling of drinks should be made of boiled and filtered water.

**Water in Leaden Pipes and Cisterns.**—One of the most danger-

ous of the impurities, liable to occur in waters used for drinking and culinary purposes, is *lead*, derived from the leaden pipes or reservoirs commonly used for transmitting or storing water. The action of different waters on lead, varies considerably. A water may act upon lead and corrode it, without becoming itself actively poisonous, if the compound formed be *insoluble;* but if the compound formed by the corrosion passes into solution, then the water containing it becomes poisonous. When ordinary water is placed in contact with lead, the free oxygen it contains combines with the metal and forms hydrated oxyd of lead, which is nearly insoluble. There is also, as has been before stated, in most waters, more or less of carbonic acid, which in turn combines with the oxyd of lead and forms carbonate of lead, which is also insoluble. But, if there be in the water an excess of carbonic acid, then a bicarbonate of lead is formed, which is very soluble, and therefore passes into solution in the water. The following waters may be considered as especially liable to act on lead: 1st. Waters which are very pure, and at the same time highly aerated—that is, highly charged with air and carbonic acid. 2d. Waters which contain nitrates (nitrate of potash or saltpeter; nitrate of soda; nitrate of lime, etc.); chlorides (as common salt, the chloride of sodium); or organic matter, as those flowing from the vicinity of barnyards, manure heaps, or from swamps and fields, all dissolve lead from the pipes through which they pass; and the constant use of such waters, in the process of time, will introduce sufficient lead into the system to produce disease. Waters, on the other hand, which contain the salt known as sulphates (*i. e.* sulphate of lime or gypsum,) and phosphates, are believed to exert but comparatively little action on lead; as in these cases a film of insoluble sulphate or phosphate of lead forms after a little time upon the surface of the pipe, which prevents all further corrosion.

So general, however, is the action of water upon lead, that it is rare to find any water that has been kept in contact with the metal for a considerable period, which does not contain some traces of it; and nearly all scientific men and physicians, who have given much attention to the subject, unite in recommending the entire disuse of lead for any purpose connected with the service of water. Dr. Dana, of Lowell, Mass., recommends as substitutes for leaden pipes in the conveying of water: "1st. Wood, wherever it can be used; 2d. Cast-iron, or wrought-iron tubes; 3d. Copper, protected by a lining of *pure* tin. The use of all other metals, or alloys of these, in the present state of our knowledge and experience on these subjects, ought forthwith to be abandoned." In cases where the use of water conveyed through leaden pipes, can not be well avoided, especial care should be taken to

empty the pipes of the water which has been for some time retained in them.

To remove lead from water, Prof. Faraday recommends "the practice of stirring up animal charcoal with the water so contaminated, the same being then allowed to settle."

The use of waters containing lead is the more dangerous, from the circumstance, that the action of the poison is very deceptive and not often immediate; the lead accumulating in the system without the knowledge of the individual; and producing, often after the lapse of years, a number of different and distressing forms of disease, such as Colic, Paralysis, etc. Within the last few years, Rheumatic and Neuralgic Affections have become very frequent in the United States; and it is the opinion of some celebrated physicians, that lead is often the incipient, or immediate cause of them.

**Effects of Bad Water for Drink.**—When water—our natural beverage—is impure, it proves to be a cause of protracted ailments in ordinary seasons; and in those of epidemic visitations, it acts as a directly exciting cause of disease, and death. In marshy regions, in which periodical Fevers abound, water is deemed by some, on good evidence, to be as actively a contributing cause, as bad air itself. But, its malignancy has been particularly conspicuous in the production of Cholera and Typhoid Fever; and some examples illustrative of the fact, will, we think, prove not only interesting to our readers, but may serve to enforce the caution which has already been given.

During the visitation of the city of London, in 1854, by the Cholera, there were large districts of the city, through which were distributed two different qualities of water, supplied by two independent and distinct companies; so that one large section of the population, numbering about 268,000 persons, drank an impure water; while another section, numbering about 166,000 persons, used water from an entirely different source. In all other respects, these two populations (being intermixed in the same districts, and even in the same streets of these districts,) were living under precisely similar sanitary and social circumstances; breathing the same atmosphere, having the same employment, and averaging the same habits of life. In short, they were placed in circumstances nearly identical, saving the difference in the source whence they obtained their water for drink. Now, at the close of the epidemic, an accurate inquiry, instituted by the Government Board of Health, showed that the mortality among the drinkers of the impure water, was at the rate of 130 to every 10,000; while that of the drinkers of the purer water, was only at the rate of 37 to every 10,000.

Another instance of remarkable contrast occurred in the city of

Oxford, England, in respect to two jails, or prisons—the city and the county—the two buildings being in proximity to each other, and under essentially the same conditions. The inmates of the former entirely escaped the Cholera in 1854, while those in the latter were severely afflicted. On examination, it was found that the only apparent difference between the two institutions consisted in this: that in the county jail, the water, of which the soup supplied to the prisoners was made, was pumped from a well within ten feet of one of the prison drains; and when this fact was ascertained, and the supply of water from the old source was discontinued, then the Cholera and Diarrhea almost immediately ceased. Prof. Palmer, of Chicago, in commenting on a fearful visitation of the city of Sandusky, Ohio, by the Cholera, says: "The city is situated on a clay soil, underlaid by a limestone, and is supplied with water mostly from wells, dug in this tenacious clay. This water is not only charged with lime and other earthy salts, but likewise contains large quantities of decaying organic matter, derived from surface drainage. I am fully of the opinion, that the fearful ravages of Cholera in this city may be, in a great measure, attributed to the use of impure water." "It is also a well established fact, that, in the city of Cincinnati, of all persons who used the water of certain springs on the surrounding limestone hills, during the prevalence of Cholera, not one escaped attacks of the disease." I might cite instance after instance of a like nature from then up to the present time, all telling the same story, that the water often contains the causes of many diseases, such as Cholera and Typhoid Fever; and bacteriological examination of such water always discloses the germ characteristic of those diseases present.

The deleterious effects of impure water are not, however, confined to large cities; but they occur in small villages, sometimes in the solitary farm-house—any place, in short, in which the pump or well is in proximity to a farm-yard, pig-sty, privy, etc. The penalty for this indifference to obtain a supply of good water, is paid in the frequent occurrence of Bowel Complaints, and the sudden inroads of epidemic diseases, which attack without any apparent provocation. In the new settlements of the West and South especially, the enterprising pioneer and his family often pay a tax, in the shape of disease and not seldom of life itself, from the use of bad water. In Great Britain, the spread of epidemic *Scarlatina*, of a most malignant type, in agricultural villages, has, in some instances, been traced, beyond the possibility of a doubt, to the use of well-water containing nitrates and other matters, the product of the decomposition of the usual materials which collect in the vicinity of barns and stables.

**Hard and Soft Waters.**—Water is familiarly spoken of as *hard* or *soft*, according to its action on soap. Those waters which contain compounds of lime or magnesia, occasion a *curdling* of the soap, as these earths produce, with the fat of the soap, a substance which

is not soluble in water. Soft waters do not contain these earths, and dissolve the soap without difficulty. Hence, with hard water, an excessive quantity of soap is required for washing and cleansing, while at the same time, the operation is less agreeable and satisfactory than with soft water. The saving, therefore, in the wear and tear of clothes, and in the article of soap, by the use of soft water in the place of hard, is very great.

To test the quality, or degree of hardness, of any water, dissolve a little soap in alcohol, and put a few drops into the specimen it is desirable to examine. If the water remains clear, it may be considered as perfectly soft; but if it becomes cloudy or opaque, the water may be considered as hard; and according to the density of the cloudiness, is its degree of hardness.

Many hard waters, as has been before stated, may be rendered softer by boiling. Especially is this the case with waters rendered hard by the presence of carbonate of lime, held in solution by carbonic acid in the water. Such water, of fourteen degrees of hardness, lost two degrees when merely made to boil; boiling for five minutes reduced the hardness to six degrees; and for a quarter of an hour, to a little more than four degrees. The hardness of most waters can also be corrected, by adding to them very moderate quantities of the alkalies, as soda, potash, etc. Of these, soda is preferable, as it is somewhat less corrosive in its action than potash, and is, therefore, less liable to injure. The excess of alkali added to a washing water, tends to fade and discharge the colors of fabrics, and to impair their strength and durability.

For the preparation of solutions, soft water is always more suitable than hard water; inasmuch as the former, being free from dissolved mineral matters, is capable of exerting a greater solvent action. In all culinary operations, therefore, where the object is mainly to soften the texture of animal or vegetable substances, or extract from them, and present in a liquid form some valuable constituent, as in the preparation of soups, tea, coffee, etc., soft water is the best. In other instances, in which it is desired to cook a substance, and not to dissolve it or extract its juice, hard water is preferable. To prevent the over-dissolving action of soft water in cooking, salt is frequently added, which hardens it.*

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* If one portion of vegetables be boiled in pure soft water, and another in water to which a little salt has been added, a decided difference in the flavor of the two will be discernible. In the case of onions, the difference is so marked that when boiled in soft water they come out almost entirely destitute of either taste or odor; while on the other hand, if cooked in salted water, they possess a peculiar sweetness and a strong aroma. The presence of a small quantity of salt in the water, hinders the solution and evaporation of the soluble and flavoring principles of the vegetables. Peas and beans will not

It was calculated in 1850 that by the use of soft water in London, the saving of soap would probably be equivalent to the whole of the money at that time expended on water supply; and the saving in tea would equal one-third of the annual consumption. The estimate was doubtless exaggerated, but it sufficiently shows the economical importance of the change.

It has been already stated that waters containing lime held in solution by carbonic acid, "*fur*" or coat the sides of the vessels in which they are boiled. This matter, although it may appear trivial at first thought, or in a single instance, is really of importance, and, in the aggregate, is an unquestionable source of material loss. Thus a vessel so coated, besides being difficult of cleansing, is very apt to retain the odor and flavor of the various substances cooked in it. It also becomes an imperfect conductor of heat, and thus occasions an increased expenditure of fuel. If any one thinks this too small a matter to mention, let him try the experiment of coating the inside of a vessel with a thin shell of sulphate of lime (plaster of Paris), and he will then find, if never before, reason to believe in the correctness of the old proverb, "A watched pot never boils." Deposits from hard water on the interior of boilers, through the additional quantity of heat which they render necessary, also lead to the rapid destruction of the metal of which the boilers are composed; a fact that it is important to bear in mind in seeking for a water supply for steam generation.

## HINTS AND SUGGESTIONS RELATIVE TO THE CLEANSING OF TEXTILE FABRICS.

The best experience, in respect to the cleansing of woolens, flannels, etc., indicates that these fabrics should never be put into cold water, but always into warm water; and if changed from water to water, they should go from hot to hotter. In the cleansing of fabrics like *mousseline de laines*, on a large scale, preparatory to printing them with colors, it is customary to place them first in water at 100° F. to 120° F., and then treat them successively with water 10° F. hotter, in each case. Excessive rubbing in the washing of woolen fabrics is also to be avoided; for the reason that the fibers of wool, by friction and beating, tend to lock in, or, as it is technically called, *felt*, with one another, which in time produces shrinking of the fabric. Cold water, by producing contraction of the wool fibers, tends also to the same result. As a preparative for the washing of cotton or other fabrics,

boil soft in hard water; a fact due to the circumstance that the lime present in the water coagulates and hardens a peculiar substance (*casein*) found in these seeds.— *Wells' Principles of Chemistry.*

it has been recommended to soak the articles in warm water, to which a little wheat-bran has been added, over night. The bran undergoes a species of fermentation, which tends to loosen and facilitate the removal of the impurities adherent to the textile fibers. Soaking in water which has been rendered slightly alkaline by the addition of potash, or soda, (pearlash or sal-soda), is also a useful preparation for washing; but a too free use of the alkalies shrinks the fibers of cloth (especially cotton,) and also impairs their strength. "Resin soap (*i. e.* common yellow soap) should not be employed to wash woolens, as the resin has the effect of hardening the fibers. Delicate textures, and especially white linen, should never be boiled in hard water. The carbonate of lime precipitated from hard water by boiling, is not only deposited upon the fabric, but carries down with it whatever coloring matter happens to exist in the water, and fixes it upon the fabric, imparting to it a disagreeable and unremovable dirty hue."—*Yeoman's.* For washing fine muslins of delicate colors, the following plan has been recommended: Take wheat-bran, about 2 quarts for a full-sized dress, and boil it for a half hour in soft water; then allow it to cool, strain the liquor, and use it as a substitute for soap-suds. It removes dirt like soap, and is inert as respects colors. Delicate muslins are often spoiled in washing, by the discharge of their colors from the use of warm soap-suds. In all cases, the suds and rinsing water, for colored articles of cotton, should be used as cold as possible.

For the removal of stains, spots, etc., from fabrics, it is difficult to lay down specific rules; the methods and agents to be employed varying with the nature of the case. Grease spots may generally be removed by the patient application of pure soap and water. Ether, Chloroform, and Spirits of Turpentine (pure and rectified), are also very effectual for the removal of spots of grease, oil, paint, and varnish; Ether and Chloroform, applied with a sponge, are to be especially recommended for the cleaning of delicate silks, injured by contact with any of the above substances. The following is a preparation used by professional cleaners of fabrics: To 16 ounces of rectified Alcohol, add 10 grains of Carbonate of Potash (pure), and 1 ounce of Sulphuric Ether; mix, and keep in a glass-stoppered bottle. Apply with a piece of sponge, soaking it thoroughly when the grease or paint spot is not recent. Fuller's-earth, which is a fine grained clay, and French chalk, which is a silicate of magnesia, both have a strong attraction for fatty and oily substances, and absorb them readily. They are used by spreading in the form of a dry powder, or thin paste, over the spot, and allowing the same to remain for a few hours; the spot then only needs to be brushed.

The gall of oxen and cows has been used from time immemorial for

removing grease and dirt from fine woolen goods of delicate colors. It is, in fact, a liquid soda soap, and removes grease in the same manner as soap. As regards colors, it is inert, and some colors it is said to fix, and brighten. Gall has, however, a greenish tinge, which is bad for the purity of white articles, and is possessed, moreover, of a very offensive odor. To use gall, it should be mixed with just as much rain water as will allow the woolen article to be squeezed and handled freely. It requires considerable handling of the article in the liquid before the gall acts thoroughly. After the dirt and grease are removed, the dress, shawl, or whatever it may be that is washed in it, should be thoroughly rinsed in clean soft water. It will take three or four fresh supplies of water to remove all traces of the gall from the goods, and none must be left in, on account of the offensive smell. The use of gall infused in soft water, is especially recommended for washing fine woolens, and stamped muslins of light greens, blues, purples, and other delicate colors. One gall is sufficient for a small dress.

Unsized porous paper (*i. e.* blotting, or printing paper), pressed upon spots of spermaceti, stearine, or grease, with a warm iron, will often imbibe and remove the fatty substance.

For cleaning soiled wall-paper, the following plan is recommended: Take about two quarts of dry wheat-bran, inclose it in a bag of coarse flannel, and rub it over the paper. To remove iron rust, or ink stains, use Oxalate of Potash (Salts of Sorrel), or even Lemon-juice; the first should be applied in powder upon the spots, previously well moistened with water, and after a little time, effectually washed out with pure water. Oxalic Acid is still more powerful for effecting the same objects, but it is more corrosive, and unless completely removed by washing, will injure the fabric.

Stains of indelible ink, prepared from Nitrate of Silver (the ordinary preparation), may be removed by first soaking in a solution of common Salt, and afterward washing with Aqua Ammonia.

For discolorations produced by acids, apply, as soon as possible thereafter, Aqua Ammonia. For stains produced by alkalies, apply strong pure Vinegar, sponging subsequently in both instances with pure water.

Fruit stains, wine stains, and those made by colored vegetable juices, are generally very intractable. Thorough rubbing with soap and soft water; repeated dipping in sour buttermilk, and drying in the sun; rubbing on a thick mixture of starch and cold water, and exposing long to sun and air, are among the expedients resorted to. *Youman's Chemistry.*

## SEWERS AND SEWERAGE.

Under the general name of *sewage*, are included the solid and liquid ejecta of men; the filth of kitchens; the drainings from stables, slaughter-houses, and markets; the washings of streets and alleys, and the fluid refuse of every branch of industry. Of all substances, these are the most prone to decompose and give off poisonous gases (the nature of which has already been referred to). It is, therefore, of vital importance to the health of individuals and communities, that these products should not be allowed to accumulate in the vicinity of places occupied by man; or if such accumulation is unavoidable, that they be regularly and systematically disinfected, or deprived of their noxious properties.

Where it is not deemed desirable to turn the sewerage to an economical purpose (*i. e.* to serve as a fertilizer), the most expedient plan for its removal is to conduct it by pipes and drains, laid at a suitable inclination, into some constantly-flowing stream, or changing body of water. When this is not practical, reservoirs, or cess-pools, should be provided for its reception. These should be removed as far as possible from dwellings, and so arranged that their contents may be conveniently disinfected and occasionally removed.

**Construction of Sewers.**—Egg-shaped culverts of a moderate size, and pipes of small diameter, perfectly smooth, are recommended by engineers as the most preferable form of sewer conduits. There is much less friction and risk of detention of sewerage, when the conveying duct is egg-shaped or circular, than when the sides are upright. Care should be taken to avoid having the branches of sewers intersect at right angles; as a rectangular mode of junction increases the resistance to the flow of the current, thereby producing eddies, which, in turn, form injurious accumulations of deposits above the point of meeting.

A sufficient inclination should also be secured for the water to flow readily through the conduits. This required inclination will vary with the size of the drains. Thus, a good sized brook or stream will run sufficiently swift with a fall of *two* feet per mile; while a small brook will hardly keep an open course under *four* feet per mile. For sewers and drains of small size, it is generally agreed that the inclination should not be less than one inch per rod; and if a greater fall can be easily obtained, it is best to take advantage of it.

The size of a pipe for a local drain, or sewer, intersecting a main drain, will, of course, vary with the number of houses accommodated by it. In one instance, in London, an 18-inch drain was carried 400 feet back of forty houses, where there was a good supply of water

and it was kept clean and free from impediment. Experience, in Great Britain, has led to the recommendation of earthenware pipes, glazed, for local drains, in preference to brick conduits; as these last not unfrequently allow of an exudation of their contents. The joints may be put together with puddled clay, or with cement.

The escape of deleterious emanations from sewers and house-drains ought to be carefully guarded against; and especially is this necessary where there is not an independent supply of water continually flowing through the conduits. The cheapest and most ready method of preventing the return of reflux odors from sewers, is by placing a delicately-hung flap-valve of galvanized iron at the extreme end of the conduit tube, where it discharges into the main drain. The valve will always remain shut, except when opened by a flow from the house. Several other plans have also been adopted and used; one of which, known as the "water pan," is familiar to all plumbers, and is not expensive. There are numerous forms of traps used, working on various principles; some form should always be employed.

The most ready and effectual method of cleansing foul sewers, drains, gutters, etc., is to *flush* them with water.

**Disposal of Sewerage.**—The sewerage accumulation of a large town or city, in the course of a year, is enormous; and some authorities have estimated it as high as a tun for each individual. How to dispose of this material—*waste* in one sense and *valuable* in another—in a manner consistent with health and economy, is one of the great problems of modern civilization. To allow it to flow into brooks and rivers, is to pollute the waters which are made its receptacle; while the waste of so large an amount of valuable fertilizing material is a direct pecuniary loss to agriculturists, and to the State. While no practical plan for utilizing sewerage on a large scale has yet been devised, or can be here recommended, it may not be inappropriate or uninteresting, in this connection, to refer to a few of the estimates which have been made relative to the value of sewerage for agricultural purposes I may say that Paris has a large tract of land under cultivation which is fertilized by its sewage. This is known as a sewage farm.

It has been computed that if the whole sewage of the city of New York and its environs, could be employed for manurial purposes at a sufficient distance from the city, it would be equal in value, *per annum*, to 52,000 tons of the best Peruvian guano, of the value of $2,550,000.

An estimate by a distinguished British agriculturist, places the question in a still stronger light. It rates the annual average value of the excreta of each individual at five dollars; so that, taking the whole population of Great Britain at twenty-eight millions, "we are positively," says this writer, "*throwing away* every year that which is equivalent to *twenty-eight millions sterling*," or one hundred and forty

millions of dollars. According to Dr. Lyon Playfair, a pound of urine is capable of increasing the production of grain by an equa weight; so that even allowing for some exaggeration in this estimate, the human urine wasted in the British Kingdom, would serve to produce more than all the grain required for the consumption of their entire population; besides affording, through its fertilizing influence on lands, at present imperfectly tilled, or not tilled at all, a source of employment to a superabundant laboring population.

## DISINFECTANTS AND DEODORIZERS.

When the removal of the readily decomposing excreta of men and animals, the offal of kitchens and stables, and the refuse of manufactories, by a system of sewerage and drainage, is impracticable, or unadvisable, some method ought to be adopted to prevent the emanation of poisonous gases invariably given off from such accumulations, and this leads to the consideration of the subject of Disinfectants and Deodorizers.

There are some persons, doubtless, who, having lived for years in proximity to stables, open cess-pools, obstructed and filthy gutters, etc., and having for the same time enjoyed a tolerable degree of health, are ready to scout and decry the necessity of preventive measures of the kind above referred to. But of these people it may be affirmed with absolute certainty, that if they have not as yet been directly poisoned by the continued inhalation of a corrupt atmosphere charged with gaseous poisons, they are nevertheless predisposed—or primed as it were—for disease; so that even a slight change in the conditions of the atmosphere, food, or their mental or physical necessities, serves as a spark to ignite into febrile fire their weakened and susceptible systems. And if it were possible for us to obtain the statistics, it would undoubtedly be found, that the aggregate loss of life, through the slow and insidious action of poisonous gases arising from uncared-for filth—manifesting itself in the form of Digestive Derangements, Bowel and Kidney Diseases, Tuberculosis, etc.—would be greater than that effected by the most fearful pestilences. A confirmation of these views is also found in the fact, that statistics show that the air of towns (where, from the congregation of inhabitants, decomposing organic products necessarily tend to accumulate), differs from that of the country in the ratio of 22 to 34. Or, in other words, where an individual has the chance of attaining the age of 22 years in the air of a town, he would have an equal chance of living to the age of 34 years in the air of a salubrious country residence.

*All disinfectants and deodorizers should be regarded as simply aids for restoring and preserving healthful purity, and not as substitutes*

*for pure air and cleanliness. There can be no substitute for a pure atmosphere.*

Chemists make the following distinction between disinfectants and deodorizers: A *disinfectant* is an agent that attacks infectious germs, and either by uniting with them, or breaking up their constituent elements, transforms them into innocuous products. A *deodorizer*, on the other hand, merely masks or destroys the bad odor, without reaching the true spirit of evil. Its action is not strictly on the putrid product, but merely on the sense of smell, which it blunts to the action of the offensive vapor. During the Middle Ages, when the Plague, Black-death, Sweating Sickness, and Pestilential Fevers desolated the cities of Europe, immense importance was attached to the use of perfumes as protectives against contagion; and fumigations, with costly spices, volatile oils, and rich-smelling Oriental drugs, were largely used in the houses of the rich; but with no good effect.

The name *antiseptics*, is given to a class of substances which prevent the growth and development of septic or pathogenic germs; such substances are: The mineral acids, Carbolic Acid (pure), Formolin, Bichloride of Mercury, and like articles.

**Natural Disinfectants.**—*The atmosphere* is a great disinfector; partially by its removal, with its currents, of contaminating matter, and partially by its power of oxidation.

*Water* is the next great disinfectant employed by Nature. As putrefaction, however, will not take place in the absence of moisture, water may also be regarded as one of the greatest promoters of decomposition. Water acts as a disinfectant, by the simple act of washing. Each shower of rain, each river and stream, removes from the land a certain quantity of substance susceptible of decomposition. The ocean bears the decaying matter further from the land, mingles it with purer water, washes it, dashes it about in the air, and thus produces oxidation and purification.

*Soil, or fresh earth*, is another great disinfectant, and in conjunction with air and water, one of the most efficient of all known agencies. Organic and putrid substances sink into its porosities in solution, and mixed with air, thus become of necessity oxidized. Water impregnated with every impurity, in sinking through the earth, is filtered, and is only deleterious where the abundance of animal matter is more than can be acted upon by the soil. As respects the deodorizing power of common earth, everyone is familiar; "in fact, the graveyards of every city testify to the enormous quantities of organic matter that can be disposed of through its agency; and no one who has witnessed the rapid deodorizing power of clay, when sewage or night-soil is distributed upon the land, can doubt its efficacy.

The Chinese have long taken advantage of this power, for they mix night-soil with one-third of its weight of fat marl,* and knead it into cakes, which are common articles of commerce. In practice, also, it has been found, that a ton of clay will completely deodorize about three tons of the solid matter of sewage."—*Dr. Letheby.* We now know that this apparent power of the soil lies in the Bacteria which infest its upper layers, and that without them our existence would be almost impossible. (See the section on Bacteriology.)

*Light* is another natural disinfectant, and tends to promote oxidation. Many germs cannot live in sunlight.

*Heat and Cold* are likewise powerful disinfectants—partly natural, partly artificial.

"The value of fire as a disinfectant was known, and has been recognized since the remotest epochs. The sacrificial altars of early nations were undoubtedly rude methods by which the agent was employed; and so fully did the ancients believe in its salutary action, that in times of pestilence it was often resorted to as the only effective means of purifying the atmosphere. In the popular mind, there has always been a notion that the Great Plague of London was exterminated by the great fire that occurred about the same time." "As a means of immediate disinfection of contaminated garments, bedding, and even close apartments, ships, etc., heat is at once a cheap and most effectual method. The boiling of infected clothing, etc., is admitted effectually to destroy any contagious poison, and practically, upon a large scale, in such work, experience proves it is best to employ steam as a means of heating. It is probable that no circumstance contributes more directly to the perpetuation and spread of Typhus Fever than the accumulation and bad management of contaminated clothing, etc., that ought, under all circumstances, to be purified (by heat), as soon as it leaves the patient, or the bed."—*Bulletin of the U. S. Sanitary Commission, 1864.* Heat is the most powerful and surest disinfectant antiseptic and germicide known. All germs are destroyed when exposed to the boiling temperature (212°); in the presence of moisture for five hours, most germs only require half an hour's exposure.

"*Frost, or Low Temperature*, when continued a sufficient length of time, will effectually destroy both the germ that produces Yellow Fever, and the paludal malaria that produces Intermittent and Remittent Fevers; but such low temperature has no effect to arrest those Fevers in the persons suffering from them. It is also worthy of note, that a freezing temperature does not appear to mitigate the personally infectious poisons, or contagions (*i. e.*, Small-pox, etc.); though, with certain exceptions, it arrests putrefaction

* The name marl is used to designate all friable compounds of clay and lime.

and the action of fermentation."—*Ibid.* Cold arrests the action of most germs, but does not kill them; hence, with the return of heat they again become active; even ice itself may be harmless, yet on melting, it may set free any previously contained bacteria.

**Artificial Disinfectants.**— *Charcoal.*— First in efficiency, cheapness and availability of artificial antiseptics, deodorizers, and disinfectants, is charcoal. The disinfective properties of charcoal are due almost entirely to its great porosity. Liebig states that the pores in a cubic inch of beach charcoal must, at the lowest computation, be equal to the surface of 100 square feet; and some chemists have estimated it at more than double this amount. By reason of this peculiar physical structure, the charcoal becomes endowed with a remarkable capacity for absorbing and condensing gases; and hence, when it is exposed to an atmosphere containing the putrid products of decomposition, it quickly absorbs them. Thus far, the action of charcoal is simply mechanical, but it does not stop here; for when once the miasmata become stored in the pores of the coal, a secondary and chemical action is promoted, by reason of the intimate contact of the former with the air condensed also by the charcoal. This contact causes rapid oxidation to take place, and as oxidation is a species of combustion, the putrid matters are burned up and destroyed as effectually as if they were passed through the ignited coals of a furnace. Freshly burned and broken charcoal will absorb from ten to fourteen *per cent.* of its own weight of gases and moisture from the atmosphere during a period of twenty-four hours; and it is capable of absorbing ninety times its own volume of ammonia, or fifty-five times its own volume of sulphureted hydrogen. The disinfecting and deodorizing power of fine charcoal depends greatly upon its being both fresh and dry. Charcoal loses its absorptive and disinfecting power in a great degree by use, but can be restored to full efficiency by moderately heating it.

Properly applied, charcoal is an arrester of putrefaction. Animal matter, in an advanced state of putrefaction, loses all offensive odor when covered with a layer of charcoal; it continues to decay, but without emitting any ill odor.

All kinds of charcoal are not, however, equally effective; wood charcoal and the charcoal derived from the carbonization of peat being the most valuable. During the Crimean War, the British Sanitary Commission sent out whole ship-loads of peat charcoal, to be used as a deodorizer and disinfectant of the masses of putrescent material that had accumulated in the vicinity of military camps, hospitals, and barracks. A report of that commission recommends the following as one of the most efficient of deodorizing compounds: *one part of Peat Charcoal, one part of Quicklime, and four parts of Sand and Gravel.*

Night-soil can be deodorized and removed without offense by covering it with fine charcoal. *Poudrette*, without an offensive smell, has been, for some years past, manufactured on a large scale from night-soil, by the following method: to three cart-loads of coal ashes add one of charcoal, and to fifty cart-loads of night-soil add one of the above mixed coal ashes and charcoal. The charcoal used is obtained from whisky refiners, at a cost of from fifty cents to one dollar per cart-load. It is thoroughly dried before being used.

Advantage has been taken of the power of charcoal to absorb noxious gases, to construct a respirator for protection against the inhalation of malarious and infected air. It consists of a hollow case of wire-gauze filled with coarsely-powdered charcoal, and fitted over the mouth and nostrils by straps. All the air that enters the lungs must pass through this charcoal sieve, and in so passing, is deprived of the noxious vapors or gases it may contain. For persons engaged in hospitals, dissecting-rooms, the holds of ships, or in the vicinity of sewers, this device is most valuable. Foul water filtered through a layer of powdered charcoal, is decolorized and purified.

Sugar refiners render brown sugar white by passing it in solution through animal charcoal. Ale and porter, subjected to the same treatment, are not only decolorized, but deprived of their bitter principles. In case of poisoning with vegetable poisons, such as Opium, Morphia, Strychnia, etc., one of the best immediate antidotes which can be given, is powdered charcoal in water: this absorbs the poisonous principle, and renders it inactive. The decolorizing action of charcoal may be illustrated by filtering porter, Port wine, or water colored with ink, through a small quantity of animal charcoal. The filtered liquor will be deprived of smell, taste, and color.

The use of charcoal air-filters, consisting of a layer of charcoal in coarse powder, varying in size, according to circumstances, between a small bean and a filbert, are strongly recommended by British Sanitarians for ventilating purposes. The charcoal is placed between two sheets of wire gauze, fixed in a frame, and can be readily applied to buildings, ships, to the air-shafts of sewers, to water-closets, and various other purposes. All the impurities in the air are absorbed by the charcoal, so that a current of pure air alone passes through the filter and in this way pure air may be obtained from exceedingly impure sources. The efficiency of the charcoal appears never to diminish, if it is kept dry, and its pores are not choked up by dust.

*Quicklime* is a cheap and useful agent for admixture with animal and other matters in a state of putrescence, as it absorbs moisture and

many noxious gases, and, by its anti-septic properties, retards, and even arrests, putrefaction. It has, however, this objectionable feature, that it eliminates and sets free the ammoniacal gases. Lime is especially convenient for use as an anti-septic, and is highly to be recommended for local applications, as in whitewashing,* and the sprinkling of gutters, cellars, damp surfaces, and putrescent substances, and for temporarily arresting putrefaction. Lime should be used dry and unslaked, except it be for the special purpose of combining with carbonic acid gas. For this end it should be reduced to creamy hydrate, and in overcrowded apartments for the sick, it may be usefully employed in this way, distributed in shallow plates.

The following preparation has been recently patented in Great Britain, as a disinfectant: Common sea-shell (oyster, cockle, etc.) are calcined in a furnace, until they are reduced to a friable condition, and readily broken and powdered. To this powder is added half the quantity of sulphate of iron (copperas), and the result is, a fine yellow powder, resembling ocher. The compound is inexpensive, and is said to possess powerful disinfecting properties; the proportions in using being one part of the disinfectant to one hundred of the matter to be treated.

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* For whitewashing cellars and rough walls, a simple mixture of fresh slaked lime and water is the best. For house-rooms, the common "Paris-white" is highly recommended, prepared as follows: Take, for each 2 pounds of whiting, 1 ounce of the best transparent glue, cover it with cold water over night, and in the morning simmer it carefully, without scorching, until dissolved. The Paris-white is then put in hot water, and the dissolved glue stirred in, with hot water enough for applying it to the walls and ceilings. This makes a very fine white, so firm that it will not rub off at all. When common fresh slaked lime is used, some recommend adding to each 2½ gallons (a pailful) 2 table-spoonfuls of salt and ½ pint of boiled linseed oil, stirred in well while the mixture is hot. This is recommended for out-door and in-door work. The *American Agriculturist* recommends the following mixture for an out-door whitewash: "Take a tub, put in a peck of lime, and plenty of water to slake it. When hot with slaking, stir in thoroughly about half a pound of tallow, or other grease, and mix it well in. Then add hot water enough for use. The compound will withstand rain for years."

We add one other receipt: "Take a clean barrel that will hold water, put into it ½ bushel of quicklime, and slake it by pouring over it boiling water sufficient to cover it four or five inches deep, and stirring it until quite slaked; dissolve in water, and add 2 pounds of sulphate of zinc, and 1 pound common salt, which will cause the whitewash to harden on the wood work in a few days; add sufficient water to bring it to the consistency of thick whitewash. To make the above wash of a pleasant cream color, add 3 pounds yellow ocher. For fawn color, add 4 pounds umber, 1 pound Indian red, and 1 pound lampblack. For gray or stone color, add 4 pounds umber and 2 pounds lampblack The color may be put on with a common whitewash brush, and will be found much more durable than common whitewash.

*Sulphate of lime* (*gypsum, plaster of Paris*), *sulphite of lime, and porous clay*, are all valuable absorbents of ammoniacal gases and foul effluvia. The air-tubes can be kept sweet and pure, and the quality of the manure there collected, improved, by sprinkling the floors and deposits, from time to time, with ground plaster. A much vaunted French disinfectant, known as "Corné & Démeaux's Disinfecting Powder," consists of about 94 per cent. of finely ground gypsum and 5 or 6 per cent. of coal-tar, or the heavy ore of coal-tar Hyposulphite of lime possesses the property of absolutely arresting fermentation, and is the substance used for preventing the souring of cider, and for aiding in the granulation of sugar from the juice of the sugar-cane.

*Coal-tar*, in almost any form in which it can be used, is employed as a disinfectant. When coal-tar is distilled, it furnishes, first, a light oil, which is a naptha; and next, a heavy oil. This last is, in great part, composed of creosote, and contains, also, an acid, known as carbolic acid. These two substances are among the most powerful of all known anti-septics, disinfectants, and deodorizers. Meat steeped for about twenty-four hours in a solution of 1 part of creosote to 100 of water, is rendered incapable of putrefaction, and acquires a delicate flavor of smoke. It is, indeed, the presence of this principle in wood-smoke, which gives to the latter its characteristic smell, its property of causing lachrymation, and its power of curing meats and fish.

In Europe, during the last few years, disinfecting compounds, manufactured out of coal-tar, or its distillates, have been extensively used. They are prepared, mainly, by mixing coal-tar with sulphate of lime (gypsum), or fuller's-earth, in such proportion that the result will constitute a dry powder. This powder is wonderfully efficient in delaying the processes of decomposition, and in deodorizing and destroying all noxious effluvia. "A distinguished Medical Inspector in our army, when cut off from ordinary medical supplies, effectually and quickly abated the nuisances pertaining to an extensive fort garrison by means of an extemporized mixture of coal-tar, procured from the gas-works on the premises." For use in chamber-vessels, close stools, etc., the French prepare a very neat fluid preparation, by mixing equal parts of coal-tar, alcohol, and hot soft-soap.

*Chlorine.*—Of all readily available disinfectants and deodorizers, *chlorine*, either in the state of free gas, or in the combination with lime or soda, as chlorides (hypochlorides) of these bases, is very useful. Chlorine acts not only chemically upon the gases produced, but upon the organized molecules of the miasmatic matter itself, decomposing and destroying them. Its pene-

trating quality enables it also to reach the poisonous gases in their most secret recesses, and diffused in an atmosphere loaded with typhoid or malarial poisons, it will remove all infection almost immediately. The use of chlorine as a disinfectant, however, requires care. In the form of bleaching powder (chloride of lime), it may be sprinkled over the surfaces of damp, decomposing, or putrescent materials. For use in apartments, it is best to mix the bleaching powder with a little water, and expose the same to the air in shallow vessels, if possible upon a high shelf. This compound is gradually decomposed by the carbonic acid of the atmosphere, and the chlorine being evolved, falls slowly down and is diffused through the room. If a more rapid action is required, a little dilute sulphuric or hydrochloric acid may be allowed to drop into the chloride of lime solution from a vessel suspended above it, by means of a piece of lamp-wick arranged in the form of a syphon. Another method is to suspend in the apartment cloths steeped in a solution of bleaching powder; and in the absence of bleaching powder, the gas may be easily generated by one of the methods already described—care being taken to avoid excess.

For disinfecting the wards of hospitals and similar places, Prof. Faraday found that a mixture of 1 part of common salt, and 1 part of the binoxyd of manganese, when acted upon by 2 parts of oil of vitriol previously mixed with 1 part of water (all by weight), and left till cold, produced the best results. Such a mixture at 60° F., in shallow pans of earthenware, liberated its chlorine gradually, but perfectly, in four days. The salt and the manganese were well mixed, and used in charges of 3½ pounds of the mixture. The acid and water were mixed in a wooden tub, the water being put in first, and then about half the acid; after cooling, the other half was added. The proportions of water and acid are 9 measures of the former to 10 of the latter.

"It should be borne in mind," says Prof. Faraday, "that chlorine in any form must only be used as an aid to proper ventilation. It is a necessary condition of health that our houses and rooms be properly ventilated. There is no substitute for ventilation any more than for washing or for general cleanliness. Chlorine, like medicine, ought in general to be used on special occasions, and under advice. In a sick-room, where ventilation is often difficult, chlorine, liberated in very minute quantities, will often be found singularly refreshing; but in this, as in all other cases of fumigation with chlorine, all metallic articles in the apartment ought to be removed, for these become speedily tarnished by the action of chlorine."

*Ozone.*—Within the last few years, the attention of scientific men has been attracted to the disinfecting action of another chemical agent, to which the name of "*ozone*" has been given. This substance is produced by the action of high voltage electricity upon the air. It is always formed during thunderstorms and gives to the air the characteristic freshness which follows such a storm. It is invisible, and subtle, and betrays its presence, when concentrated, by a pungent and peculiarly disagreeable odor. It also may be made artificially, by passing a succession of electric sparks through a tube or vessel containing atmospheric air or oxygen gas. It may also be produced by the slow action of phosphorus on oxygen or atmospheric air. One very interesting fact with regard to it as a disinfectant, is the circumstance that it is usually absent from the air of inhabited dwellings, hospitals, and badly ventilated apartments. It must, however, be stated, in qualification of its beneficial sanitary influences, that when it exists in the air in undue proportion, it begins to assume baneful properties, and produces inflammatory action upon the mucous membrane of the throat and larynx. A ready way of testing the presence of ozone in the air, is by means of iodine starch-paper, which may be simply prepared by mixing a little starch with a solution of iodide of potassium—a salt obtained of any druggist—and imbuing unsized paper with the compound. When slips of this paper are exposed to air containing ozone, they will gradually turn blue. The paper should be exposed in the shade, and out of the way of volatile exhalations and the sun's rays. When the test indicates a deficiency of ozone, as it may do in the apartments of the sick, the sign naturally suggests the propriety of using a remedy. This is not difficult to be applied; for it is only necessary to pour some water in a broad and shallow plate, immerse sticks of phosphorus at half their length in it, and leave the whole exposed in the apartment to be disinfected. The chemical combinations which ensue will produce ozone, and the test-paper will show when a sufficient quantity has been generated.

*Carbolic Acid.*—Under the head of Tar we mentioned carbolic acid. This is strictly speaking not an acid, yet it possesses a corroding action much like an acid. This is one of the best deodorants, antiseptics, and disinfectants which we possess. It occurs pure in crystals, and these dissolved in various proportions of water, are used for surgical dressings, sterilizing bedding and excretions, and for wiping the furniture of a sick room. Remember, carbolic acid in too strong solutions affects the skin, and taken internally, is a poison, for which alcohol is a specific antidote. (See Poisons.)

**Other Disinfectants and Deodorizers.**—*Permanganate of Potash* is a soluble substance, particularly convenient of application, and remarkably certain and efficient in its effects as a disinfectant and deodorizer. Its employment is limited, mainly, to local applications, and to general effect

upon the atmosphere of contaminated apartments, by means of evaporating cloths saturated with a strong solution of the permanganate. The preparations, extensively advertised under the names of "Condy's Disinfectant," "Darby's Fluid," "Ozomised Water," are but solutions of permanganates in water, and may be cheaply prepared by those desiring it. *Chloride of Zinc*, generally known in solution as "Burnett's Disinfecting Fluid," is a powerful antiseptic, though not valuable as a deodorant. It is most to be valued for its property of promptly arresting putrefactive process. *Nitrate of Lead*, known in solution as "Ledoyon's Liquid," is a most useful and cheap agent for deodorizing a close apartment, and the bedding and clothing of sick persons, by means of a solution distributed on shallow vessels or saturated cloths.

*Sulphur* is one of the best known disinfectants. A room in which a patient suffering with a contagious disease has been confined, should be fumigated by closely closing every opening into the room and then burning a pound or two of sulphur (the amount depending upon the size of the room). Pour a little alcohol on the sulphur to start it burning. There must be plenty of moisture in the room.

*Formolin* is the best disinfectant and fumigator known. Unfortunately, at present, it requires special and rather complicated apparatus to generate it in sufficient quantities to be effective. This substance is a gas, but can be obtained in an aqueous solution. The gaseous form is the one that is used for fumigating purposes. All Boards of Health should be provided with one or more generators for making this gas, and it should be accessible in every home where a contagious disease has been. The gas has no injurious effect on the most delicate fabrics, and does not affect metals, but it has a powerful action on the germs of disease.

*Chloride of Zinc and Nitrate of Lead* are largely used by embalmers for delaying decomposition in dead bodies. In the absence of an embalmer, they may be employed for this purpose, by wrapping the body in a folded sheet saturated with either of these salts.

## MEAT POISONING—PTOMAINE POISONING.

The flesh of animals killed when overdriven or exhausted is also very liable to produce diseases which, in the rapidity of their action and deadly effect, resemble Cholera; the symptoms, however, do not generally manifest themselves until some little time has elapsed after the food has been received into the stomach. The origin of the poison in the meat in these instances is explained as follows: all mental and physical effort is accompanied by and requires an expenditure of healthy animal substance. The brain, for

example, is undoubtedly used up by thinking, the muscles by exercise, the nerves by excitation. In the healthy state of the system the waste thus occasioned is at once restored, and the products of decomposition are removed by the organs of secretion, and thrown off from the body. If the functions of the organs of secretion are impeded, the products of decomposition accumulate in the system and occasion disease. In the case of overdriven animals, the products of decomposition consequent upon unusual and excessive physical exertion, remain in the body, because the organs of secretion have not had sufficient opportunity to discharge their office before the animals are slaughtered. The meat, therefore, is full of substances in just that state of decomposition which enables them to act most effectually as ferments, and their presence, therefore, renders the flesh of the most healthy animal unwholesome. It should also be mentioned that the most severe cases of poisoning of this character seem to occur when the putrefactive fermentation in the meat has only just commenced, and when its presence is hardly discernible by the senses. These poisons are called *ptomaines*, and are also often formed in canned foods, in cheese, ice cream, and numerous other food products. They are usually extremely poisonous, rapidly producing death, accompanied with acute gastro-intestinal symptoms. The treatment of ptomaine poisoning consists in evacuating the stomach of its contents (by stomach pump or emetics) and the administration of stimulants. A physician's services should be secured if possible.

## DRAINAGE.

The object of drainage, is to remove an excess of moisture from the soil. "Soils which retain an excess of moisture are correctly termed cold, while more porous soils of a sandy nature are called warm. The former are chilled, by the evaporation continually going on; while the latter are warmed below by the rain-water which percolates through from the surface, and are heated by the direct action of the sun's rays. By experiments made in Great Britain, it appears that by giving free passage to the water through a cold soil by thorough drainage, its temperature at the depth of seven inches may be raised 10° above that of undrained adjoining land of the same quality. Thus, drainage produces the effect of a warmer climate, and may add, in fact, many days to the length of the season; and this not merely by reason of the warmth extended for a longer period, but in the spring the soil is sooner prepared for cultivation, and may be in condition for plowing and planting even two weeks before neighboring land, of a similar quality in other respects, would admit of working." *Flint.* Soils abounding in moisture, are, moreover, well known to be

unfavorable to the production of large crops; all the grains and roots grown upon them are believed to be always inferior in quality to those grown upon dryer soils.

An excess of moisture in a soil is also a hindrance to perfect tillage, as it prevents thorough pulverization of the earth by the plow and harrow, and the circulation of the air to the roots of plants. It is also an acknowledged fact, that while efficiently drained land has no surplus water, it always withstands a severe drought better than undrained land, which abounds in water during the major part of the year.

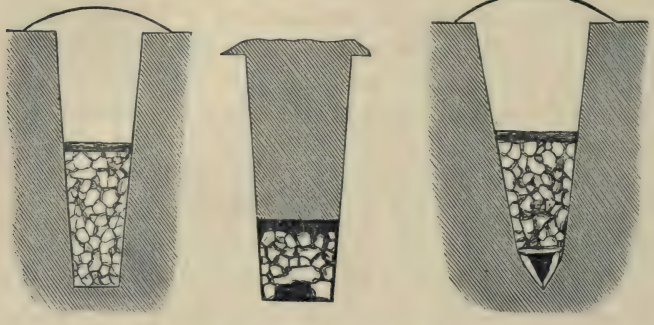
As an illustration of the amount of water which can be withdrawn from a soil by a moderate system of drainage, it has been estimated if the surplus water of a soil and subsoil, is only equal to a depth of two inches (and at the wettest part of the season it undoubtedly, in many soils, greatly exceeds this), then the whole quantity retained in a field of ten acres would exceed *seven thousand hogsheads.*

Such, then, in brief, is the important relation which drainage sustains to agriculture; but as regards man, the necessity of the drainage of land, as a sanitary measure, can hardly be overrated. By recent researches of Dr. Henry J. Bowditch, of Boston, it appears that the localities in Massachusetts, in which statistics prove Consumption to be most prevalent, are almost invariably localities which are badly drained; fifty out of fifty-five districts of marked Consumptive character in the above State being found to be wet by contiguity to ponds or marshes, or by reason of low, moist lands. At the same time it was observed that dry and drained localities in the immediate vicinity of the above-noticed unhealthy districts, were as free from any tendency to induce or aggravate Consumption, as more distant often visited by patients with the hope of recovery. It has also been from time immemorial remarked, that undrained lands tend to induce Fevers and Malaria; and as these continue to prevail in the same localities after the original forests have been swept away, it is evident that the cause is not so much the decay of vegetable matter, as the dampness produced by the continued saturation of the earth with moisture.

**How to Construct Drains.**—Drainage is effected either by opening channels upon the surface (surface drainage), or by means of covered drains. The former are often very useful, but they are liable to serious objections. They do not effectually reach the cold, stagnating accumulations of water beneath the soil; they interfere with proper cultivation; their sides become the favorite *habitat* of weeds; and they take up a good deal of ground which might otherwise be made productive. Such ditches should be used only as brooks in the lowest

grounds, to convey away the water discharged into them by the underground drains coming down the slopes.

Under drains avoid these objections, and are more economical They may be constructed of stones, or with tiles made for the purpose.



To lay a stone drain, a trench must first be dug to the required depth, and the bottom filled up with stones in the manner represented in the annexed plates.

Another form of drain, known as the "brush drain," is constructed by digging a trench and filling it up to a certain depth with small brush. The brush is then thoroughly pressed down, and covered over with sods, with the turf side down. Brush drains, well constructed, will answer a good purpose for eight or ten years. Another form of cheap drain, known as the "log drain," is made by laying down two logs in a trench, with a third above them; the whole forming a triangular construction, with opening at the base.

The most effectual, and, in the long run, the most economical drain, is, however, the "tile-drain." By tiles, we mean short pipes, molded and baked, of clay. They are made of various sizes, from two to eight inches in diameter, and about a foot in length; their cost varies from time to time. Tiles are carefully set in the ground, end to end, at the bottom of a trench (dug with excavating tools, made for the purpose), just wide enough to admit them. The pipes, or cylindrical tiles, are often furnished with a collar, which slips over and holds the adjoining ends—but this arrangement is not essential. The water, filtering through the soil, finds its way into the pipes by numerous joints, entering chiefly at the bottom; and it is to facilitate this action, that the tiles are made in short lengths. The fall should not be less than one inch to the rod. Tile-drains, properly laid, may be expected to last for at least a half century.

It is recommended that the depth of drains, their size, and the distance between them, should be settled by experiments, on a small scale, before the general work of draining a field, farm, or estate, is commenced. The best authorities recommend an average depth of four feet. The distance apart will vary with the character of the soil. If the soil is stiff and clayey, it is well not to exceed thirty feet; but

If the soil is very porous, the trenches may be dug forty feet apart, or even more. The deeper the drains are placed in the soil, the less must be the distance between them. When practicable, drains should be laid down hill, by the shortest or steepest course. If the drain descends *obliquely*, and if water will leach into it from above, it may also leach out again on the lower side; but once in the directly descending drain, it can not flow out again, but takes the shortest cut down the hill, in the bottom of the ditch.

Before commencing to drain, the ground should be examined carefully, and accurate information obtained as to the source from whence the water comes, that makes the land too wet. If the water runs down from the hills, or floods over from a swamp, the most obvious mode is to make open ditches, that will cut off the water before it reaches the low land. If the water sets back from a stream, raised from below by a dam, which some mill has a right to keep up, the best course is to sell out and move off; for the effect of such backwater has no limit. A good rule for determining the necessity of draining, is to observe whether water will *stand* in holes dug two or three feet, for this purpose. If the subsoil is porous, the water will immediately sink away, and ditches would be wholly useless. But if water will stand forty-eight hours in the holes, draining is necessary to relieve the subsoil of this cold and chilling mass which fills it.

In some places, a single drain, properly located, will effect complete drainage of a large piece of land; in others, numerous parallel, or branching drains, may be requisite. To ascertain this very important point, *trial holes* should be dug at regular intervals all over the piece of land to be operated on; the rapidity with which they fill, and the quantity they contain, will afford a guide for the commencement of operations. A ditch is cut in such places as appear best, and then its effects are observed on the trial holes. Those which are soon laid dry by this means, show that no more drains are needed there, even if at some distance. While those that continue filled with water, indicate that further drains are required, the position of which must be governed by observation and circumstances.

It is important to have a good drain under, or in close proximity to, every post fence, and for this reason: wherever post holes retain water, they are sure to be heaved by frost, and the fence thrown out of shape; and the posts can not last so long, where they are alternately subjected to water-soaking and drying. But if all the water which falls, passes immediately down into the ditch, it can not lie in contact with the posts long enough to soak them, and, as a consequence, they must remain perpetually dry, and last for a long period.

## PROTECTION AGAINST LIGHTNING.

The theory of a thunder-storm, and of the principles involved in the construction of lightning conductors, is simple, and ought to be fully understood by every intelligent person.

Lightning, or electricity, obeys one unvarying law. It uniformly follows the best continuous conductor, and no conductor can be considered good unless it is continuous. Abundant evidence of this is afforded by the use of broken or otherwise defective lightning rods. The lightning takes the rod and follows it to where the break exists; then finds its next best conductor within the building, in close proximity to the break, crashes through the wall, perhaps where the family are sitting, and deals death around it, finding its way into the earth by tortuous channels—the stove-pipe, the gas-pipes, or, in their absence, shattering the wood-work and plastering. Defective rods of any kind are mere traps for bringing lightning into a house, instead of keeping it out. They are the most dangerous fixtures a family can have about them; and although it is not unfrequently stated in the public prints, or otherwise, that houses provided with rods are struck by lightning and damaged, yet it may be certainly assumed, that in every such instance the rod was out of order, or put up improperly. The principle of protection developed by Franklin, remains sound; and all that is necessary to secure a perfect immunity from danger from lightning, is a strict adherence to what we know it demands as a condition of safety.

The following rules, prepared (in the main) by Prof. Joseph Henry, of the Smithsonian Institution, Washington, embrace a nearly complete summary of directions for constructing and erecting lightning rods:

1st. The rod should consist of round iron, of not less than three-fourths of an inch in diameter. A larger size is preferable to a smaller one. Iron is preferred because it can be readily procured, is cheap, a sufficiently good conductor, and when of the size mentioned can not be melted by the discharge from the clouds. Galvanized iron is preferable, as it is not liable to oxydation. Lightning conductors are frequently constructed in this country with points projecting at intervals of two or three feet through their whole length; this plan has been adopted from some erroneous idea in regard to the action of the conductor, and of the proper application of points. The essential office of the conductor is to receive the discharge from the cloud, and to transmit it with the least resistance possible, silently and innoxiously, to the great body of the earth below, and any thing which militates against these requisites must be prejudicial. Now, in the passage of the electricity through the conductor, it retains its repulsive energy,

and hence each point along the rod in succession becomes highly charged, and tends to give off a spark to bodies in the neighborhood Besides this, the irregularity in the motion of the electricity which is thus produced, must, on mechanical principles, interfere with its free transmission. The points along the course of the rod should, therefore, be omitted, since they can do no possible good, and may produce injury.

2d. The rod should be, through its whole length, in perfect metallic continuity; as many pieces should be joined together by welding, as practicable, and when other joinings are unavoidable, they should be made by screwing the parts firmly together by a coupling ferule, care being taken to make the upper connection of the latter with the rod water-tight, by cement, solder, or paint.

3d. To secure it from rust, the rod should be covered with a coating of black paint.

4th. It should be terminated above, with a single point, the cone of which should not be too acute. Some persons prefer to incase the point or tip of a lightning conductor with platinum or gold. To this plan there is no objection, but it should not be regarded as an essential. The main purpose of the platinum or gold points, is to prevent oxydation. But the point of a lightning rod, rarely or never oxydates. Its exposure to the air causes it to dry rapidly; and if galvanized iron be used, it will stand for centuries uninjured.

5th. The shorter and more direct the rod is in its course to the earth, the better. Acute angles made by bending in the rod and projecting points from it along its course, should be avoided.

6th. A rod should be fastened to the house by iron eyes, or staples, and may be insulated by cylinders of glass. These latter are, however, of little importance, and may be regarded as involving a useless expense. No flash will quit a properly constructed rod, because lightning never avoids a good conducting medium to follow a bad one. Hence, the rod being continuous, and the staple not so, iron staples are entirely safe. An explosion will shatter glass ones into fragments, and the sleet and ice of winter will, as certainly, destroy them. As few thunder-clouds pass over without discharging their watery contents, the glass insulators become wet, and while in that condition are as good conductors as the iron staples.

7th. The rod should be connected with the earth in the most perfect manner possible; and in cities nothing is better for this purpose than to unite it in good metallic contact with the gas mains or large water pipes in the streets; and such a connection is absolutely necessary, if the gas or water pipes are in use within the house. This connection can be made by soldering to the end of the rod a strip of

copper, which, after being wrapped several times around the pipe, is permanently attached to it. Where a connection with the ground can not be formed in this way, the rod should terminate, if possible, in a well always containing water, and where this arrangement is not practicable, it should terminate in a plate of iron or some other metal buried in the moist ground. It should, before it descends to the earth, be bent so as to pass off nearly perpendicular to the side of the house, and be buried in a trench surrounded with powdered charcoal.

8th. The rod should be placed in preference on the west or north-west side of the house, as most thunder-storms, in the northern part of the United States, come up from the north-west; and it is well to erect the conductors on those points of the building with which the cloud will first come in contact, as every thunder-cloud is surrounded by an electric atmosphere, which precedes the cloud itself. This may be easily verified, by placing the knuckle to the conductor, as the cloud approaches. Sparks will frequently be drawn from it while the thunder yet rolls in the distance, showing that the electrical haze has already enveloped the building, and that the rod is silently conducting the fluid into the earth. In fact, it is performing its functions with the mere electrical atmosphere, just as it would seek to do if assailed by an explosion from the cloud. It is also deemed advisable to erect the rod against the chimney from which a current of heated air ascends during the summer season.

9th. In case of a small house, a single rod may suffice, provided its point be sufficiently high above the roof, the rule being observed that its elevation should be at least half of the distance to which its protection is expected to extend. It is safer, however, particularly in modern houses in which a large amount of iron enters into the construction, to make the distance between two rods less than this rule would indicate, rather than more. Indeed, there is no objection to an indefinite multiplication of rods to a house, provided they are all properly connected with the ground and with each other. A building entirely inclosed, as it were, in a case of iron rods so connected with the earth, would be safe from the direct action of the lightning.

10th. When a house is covered by a metallic roof, the latter should be united, in good metallic connection, with the lightning rods; and in this case the perpendicular pipes conveying the water from the gutters at the eaves, may be made to act the part of rods by soldering strips of copper to the metal roof and pipes above, and connecting them with the earth by plates of metal, united by similar strips of copper to their lower ends, or better, with the gas or water-pipes of the city. In this case, however, the chimneys would be unprotected,

and copper lightning rods soldered to the roof, and rising a few feet above the chimneys, would suffice to receive the discharge. We say soldered to the roof, because if the contact was not very perfect, a greater intensity of action would take place at this point, and the metal might be burnt through by the discharge, particularly if it were thin.

11th. As a general rule, large masses of metal within the building, particularly those which have a perpendicular elevation, ought to be connected with the rod.

The foregoing rules may serve as general guides for the erection of lightning rods on ordinary buildings, but for the protection of a large complex structure, consisting of several parts, a special survey should be made, and the best form of protection devised which the peculiar circumstances of the case will admit.

Franklin has given some precepts for the use of such persons as, during thunder-storms, are in houses not provided with lightning conductors. He recommends them to avoid the neighborhood of fireplaces. Lightning does indeed often enter by the chimney, on account of the internal coating of soot, which is one of the bodies for which, as for metals, lightning evinces a preference. For the same reason, avoid, as much as possible, metals, gilding, and mirrors, on account of their quicksilver. The best place is in the middle of the room, unless, indeed, there should be a lamp or chandelier hanging from the ceiling. The less the contact with the walls or floor, the less the danger. A hammock suspended by silken cords in the middle of a large room, would be the safest place. In the absence of means of suspension, the next best place is on substances which are bad conductors, such as glass, pitch, or several mattresses. These precautions must be supposed to diminish danger; but they do not altogether remove it. There have been instances of glass, pitch, and several thicknesses of mattresses being traversed by lightning. It should also be understood, that if lightning does not find, round a room, a continuity of metal which it may follow, it may dart from one point to another diametrically opposite, and thus encounter persons in the middle of the room, even if they are suspended in hammocks. If out of doors, during a thunder-storm, it is prudent to avoid trees and elevated objects of every kind, which the lightning would be likely to strike in its passage to the earth. A stream of water, being a good conductor, should be avoided. In all cases, the position of safety is that in which the body can not assist as a conductor to lightning.

The apprehension and solicitude respecting lightning are proportionate to the magnitude of the evils it produces, rather than the fre

quency of its occurrence. The chances of an individual being killed by lightning are infinitely less than those which he encounters in his daily walks, in his occupation, or even during sleep from the destruction of the house in which he lives, by fire.

## DANGER FROM COPPER COOKING UTENSILS.

The precise danger from the use of copper cooking utensils, imperfectly tinned, is far from being generally understood. It appears that the acid contained in stews, as lemon-juice, though it does not dissolve the copper by being merely boiled in it a few minutes, nevertheless, if allowed to cool and stand in it for some time, will acquire a sensible impregnation of poisonous matter, as verdigris, or the green band which lines the interior of the vessel. Dr. Falconer has observed that Syrup of Lemons boiled fifteen minutes in copper or brass pans, did not acquire a sensible impregnation; but if it was allowed to cool, and remain in the pans for twenty-four hours, the impregnation was perceptible even to the taste, and was discovered by the test of metallic iron. This fact has been further confirmed by the researches of Procet, who states that in preparing food or preserves in copper, it is not until the fluid ceases to cover the metal, and is reduced in temperature, that the solution of the metal begins. Unctuous, or greasy solutions, are most liable to become impregnated with poisonous verdigris, if left long in untinned brass or copper vessels. Sir Humphrey Davy asserts that *weak* solutions of common Salt, such as are daily made, by adding a little Salt to boiling Vegetables, and other eatables in our kitchens, act powerfully on copper vessels; although *strong* ones do not affect them.

## GLASS BROKEN BY HOT WATER.

No person would be so indiscreet as to hazard the breaking of glass by pouring hot water upon it, if he but understood the simple means of accounting for its destruction. It is as follows: "If hot water be poured into a glass with a round bottom, the expansion produced by the heat of the water will cause the bottom of the glass to enlarge; while the sides, which are not heated, retain their former dimensions; and consequently, if the heat be sufficiently intense, the bottom will be forced from the sides, and a crack or flaw will surround that part of the glass by which the sides are united to the bottom. If, however, the glass be previously washed with a little warm water, so that the whole is gradually heated, and therefore gradually expanded, then the hot water may be poured in without danger; because, although the bottom will expand as before, yet the sides also enlarge, and the whole vessel undergoes a similar change of heat."

## HINTS ON THE USE OF GAS.

**Waste of Gas.**—The difference in the amount of gas consumed between different localities, depends on the pressure used at the works to force the gas to flow through the delivery pipes. A burner which, under the pressure of half an inch, consumes 4½ cubic feet of gas per hour, will, under the pressure of 1½ inches, consume in the same time six cubic feet of gas. Under great pressure the flame rises higher, whereas, if it burns sluggishly, the particles of carbon are held for a greater period of time suspended in the flame, and the gas is burned to better advantage. Again, there is a waste from keeping burners too long a time in use, as the longer a burner is used the more gas is consumed.

**Escape of Gas into Apartments.**—The most ordinary degree of care and observation, are sufficient to guard against the escape of gas. When that happens, whether by mistake, neglect, or defect in the pipes, or fittings, it is easily remedied. The odor of gas is so unlike every other, constituting one of its most valuable properties, that it can be instantly detected, traced to its source, and immediately prevented. When an escape of gas is suspected, or known to exist, open the door and window of the room, and search for it immediately; but do not use a lighted candle or ignite a match, until the room has been thoroughly ventilated.

**Smoke from Gas Lights.**—It is pretty generally imagined that the smoking of ceilings is occasioned by impurity in the gas, whereas, in this case, there is no connection between the deposition of soot and the quality of the gas. The evil arises, either from the flame being raised so high that some of its forked points give out smoke, or, more frequently, from a careless mode of lighting. If, when lighting the lamps, the stop-cock be opened suddenly, and a burst of gas be permitted to escape before the match be applied to light it, then a strong puff follows the lighting of each burner, and a cloud of black smoke rises to the ceiling. This, in many houses and shops, is repeated daily, and the inevitable consequence is, a blackened ceiling. In some well regulated houses, the glasses are taken off and wiped every day, and before they are put on again the match is applied to the lip of the burner, and the stop-cock cautiously opened, so that no more gas escapes than is sufficient to make a ring of the flame; the glasses being then put on quite straight, the stop-cocks are gently turned until the flames stand at three inches high. When this is done, few chimney glasses will be broken, and the ceilings will not be blackened for years.

**Heat from Gas Lights.**—An uncomfortable degree of heat is

sometimes complained of, as one of the results of lighting a room with gas It should, however, be remembered, that the quantity of heat emitted by lamps, candles, and gas lights, is, in practice, very nearly in proportion to the quantity of light obtained. It matters not, therefore, what means are employed, or materials used, in procuring light; for if a certain quantity be considered necessary, and there be more at one time than another, or by using gas instead of candles, the quantity be permanently increased, the heat diffused throughout the apartment must necessarily be increased in the same proportion. It must also be understood, that the products of combustion are precisely the same, in their chemical constitution, whether the light-giving material be wax, tallow, oil, or gas.

But how happens it that a room once considered so comfortable, when lighted with candles, should all at once become so oppressively warm when lighted with gas? This is a question not very difficult to answer. We will suppose that in the room referred to, on ordinary occasions, there had probably been two candles or lamps used. On special occasions, the number might have been increased to four. Now gas-light is introduced, and the usual habits of prudence and economy in the use and management of light, seem to be entirely forgotten. Gas being much cheaper than candles, the light more agreeable, and the quantity so easily increased, all the thoughts are absorbed in lighting the room effectively. If only one gas-burner be used—and that, perhaps, may not be the proper form and size adapted to the room—it is likely that in the first experience of a good light, the quantity may be equal to that derived from eight, ten, or even twelve candles. If two burners instead of one are used, and of less size, it is not likely there will be less light than from eight or ten candles. In the case here described, is it wonderful that the room should be uncomfortably warm? What is to be done? Be more economical of light. Obtain the advice of those whose knowledge and experience may be relied on, and, following their directions, use suitable burners and glasses, admit a continuous supply of fresh air to the room, and adopt some efficient mode of ventilation. All will then go on well. Every room and passage in the house might be properly, that is, effectively lighted, and there need be no waste of gas, no excess of light, no uncomfortable degree of heat, and, what is likely to be of greater importance, no cause of complaint about expense. These conditions imply good management, by which is meant just the same amount of care and watchfulness as are usually exercised over other domestic arrangements.

**How to Read the Meter.**—Every family which buys gas of a company, should know how to read the meter, which determines the

amount of gas consumed. On opening a small door there are exposed three faces, like those of a watch, but figured only to ten, with an index on each. The right hand dial expresses hundreds, that is, if the index points to 3, it means 300. The figures of the middle dial express thousands, and if it points to 3, or between 3 and 4, means 3,000. The figures of the left hand dial express tens of thousands. These must be read *by the last figure which each index has passed.* If the indexes of all the hands are between 3 and 4, it must read 30,000, 3,000, 300, or 33,300. If the left hand index is at or past 5, the middle one at or past 6, and the right hand index at or past 7, it should read 56,700. When the monthly entry is made, as a basis of charge, this sum is to be subtracted from the record for the preceding month, which must, of course, be preserved, and this shows the amount consumed meanwhile, and to be charged.

*If a meter freeze*, envelop it thoroughly in thick cloths dipped in very hot water, and repeat the process till the ice is melted. This will generally suffice, without meddling with the interior of the meter. But if not, then remove the upper thumb screw, and pour in boiling water freely, drawing it off when cooled, through the *lowest* opening. Repeat this process till the ice disappears. Then, replacing both these screws, unscrew the middle thumb screw, and let all the water run out that will run rapidly; but when it begins to escape gently, falling at once from the orifice without projectile force, replace the screw, and the meter is fit for use.

If the large iron pipe is exposed between the wall of the basement—as it often is near a basement door—and the street, it may be that moisture has been condensed, and water accumulated there and frozen. Hence, if, when the gas is "let on," and the lowest thumb screw is removed or loosened, the gas does not rush out while the meter is free from ice, then pour boiling water along the exposed pipe, until, by heating through the pipe, the ice is melted.

## HOW TO BURN COAL—ANTHRACITE.

Nine out of ten, who attempt to burn coal in a stove, waste about as much coal as is necessary to be consumed for the obtaining of all the heat desirable. The following rules for the inexperienced, are worthy of note:

1st. To make a coal-fire, put in a double handful of shavings, or use light kindling-wood instead. Fill the earthen cavity (if the stove has one) nearly full of chunks of dry wood, say four to six inches long. On the top put a dozen lumps of egg-coal; light with a paper from beneath. In ten minutes add about twenty lumps more coal. As soon as the wood has burnt out, fill the cavity half to two-thirds

full of coal. The fire will be a good one. The coal will, by these directions, become thoroughly ignited.

2d. Never fill a stove more than half or two-thirds full of coal, even in the coldest weather.

3d. When the fire is low, never shake the grate, or disturb the ashes, but add from ten to fifteen small lumps of coal, and set the draught open. When these are heated through, and somewhat ignited, add the amount necessary for a new fire, but do not disturb the ashes yet. Let the draught be open half an hour. Now shake out the ashes. The coal will be thoroughly ignited, and will keep the stove at high heat from six to twelve hours, according to the coldness of the weather.

4th. For very cold weather, after the fire is made, according to rule 1st and 3d, add every hour about fifteen or twenty lumps of egg-coal. You will find the ashes made each hour, will be about in that ratio.

**How to make a Fire in a Grate.**—Clean out your grate, and cover the bottom with a sheet of paper folded to fit; then place the coals in the grate, to the level of the top bar. The fire is then to be lighted on the top and allowed to burn downward.

It is stated that this plan of burning bituminous coal saves a great deal of fuel, and makes a cheerful brilliant fire. The theory of this saving consists in the gases arising from the fresh coal below having to pass through the fire, where they are consumed, and thus give out heat in combustion, at the same time preventing smoke.

# PHYSICAL CULTURE AND DEVELOPMENT,

BY

CHARLES S. ROYCE,
PROFESSOR OF PHYSICAL CULTURE AND HYGIENE.

# PHYSICAL CULTURE AND DEVELOPMENT

## INTRODUCTORY.

THOUGH the office of this work is chiefly Restorative, the work would be quite incomplete were it not Hygienic also. But the reader has found on almost every page, that the work *is* hygienic.

Among the hygienic subjects, and, it may be added, among the restorative subjects discussed in these pages, that of physical development by means of physical culture, is not the least important. Correct dietetics, the breathing of pure air, the proper amount of sleep, the time when, and the circumstances under which it should be taken, the proper *amount* and the best *kind* of clothing, are all subjects of vital importance to every human being, however we may practically ignore them.

But we may give to the digestive apparatus the best material for the formation of blood—we may furnish the lungs the purest air for vitalizing that blood—we may secure the proper amount of sleep under the most favorable circumstances—we may so clothe the body as to afford it the best possible protection; but if we fail to take the proper amount of exercise, if we fail to furnish to every set of muscles in the system a due amount of exercise, there can not be a harmonious development of the physical man; and any want of such development ought to be considered and treated as a disease.

The young of our race, in common with the young of the lower animals, instinctively bring into action all the muscles of the system, and thus *commence* the work of physical development. But *we* are scarcely removed from babyhood before our muscular action is restrained by false ideas of propriety; and we are constantly told that "Such actions are too rude," that "We must be little gentlemen," that "Papa does not do so," and we are watched and warned lest we should tear or soil our clothes, until at five we *are* "little gentlemen," so *gentle* that we are already losing the vivacity that properly belongs to that age.

Then comes the school-room, that daily prison-house for children; but from which some parents keep their children until they are twelve years old.

From the school-house, we go directly to business. Now we take

the kind and amount of exercise demanded by our business; and many of us take no more, and no other kind. And most of those who take more or different exercise, take it without any system.

Exercise, like every thing else, should be systematized, in order to afford the greatest amount of good.

But we shall be told that many kinds of business furnish enough, and some of them more than enough exercise. In one sense, this is true—in another, it is a mistake.

It is true that in many kinds of business, a few sets of muscles are exercised enough, or more than enough; but it is also true that no branch of industry, demanded by the civilization of the nineteenth century, gives to *all* the muscles a due amount of exercise; and most branches of laborious industry, tend to bend the body forward, and to narrow the chest. So true is this, "that he who runs may read" it in the *physique* of most laboring men.

But the millions who gain a livelihood at sedentary employments, suffer intensely for the want of proper systematic exercise. Failing to develop the muscular system during the period of growth, they lose all fondness for active exercise, and in early manhood they commence reaping the harvest of suffering that is always in store for those who violate the laws of their being.

Such is the condition of *man*. The condition of *woman* is incomparably worse. Forced by the usages of society, not only to avoid healthful exercise, but also to avoid sun light and pure air, and deprived of the healthful stimulus given by active engagement in the duties of life, it would be a miracle, if she were not a great sufferer. The only wonder is, that she is not a greater sufferer than she is.

But "what remedy is proposed?" *One* of the remedies proposed is a remedy that was known to and practiced by the Ancients, and with eminent success. Reference is had to GYMNASTIC EXERCISES.

But in thus referring to the Gymnastic Exercises of the Ancients as one of the remedies for a great and an increasing evil, no reference is had to those athletic sports, that so often crippled their stoutest and best developed men, nor yet to the "Heavy Gymnastics" of our cousins across the ocean. But we refer to "Light Gymnastics," as practiced in some of the countries of Europe, and more especially to "Light Gymnastics" as improved and systematized by Dio Lewis, M.D., of Boston, Mass., and to Free Gymnastics.

The *system* of Light Gymnastics, which that philanthropic American Gymnast, Dr. Lewis, has given, and is giving to his countrymen, "is adapted to both sexes, and to all ages." It requires no costly apparatus, and very little *fixed* apparatus. It can be practiced alone, or in companies of any number from two to two hundred or more.

It can be practiced in any room of sufficient size to accommodate the company; in such rooms as can be found in almost every house in town or country.

By the introduction of Music, to which the movements are adapted, the practice of his system is made as exhilarating as the Dance, while, unlike Dancing, it exercises all the muscles of the human frame.

To many, the practice of the system of Free Gymnastics, or Gymnastics without any apparatus, gives even more pleasurable excitement than is received from the practice of the Light Gymnastics. The peculiar advantages of the Free Gymnastics, are too apparent to require more than a passing notice.

Every one can see the advantage of being independent of apparatus, fixed or movable, both in convenience and in economy. Like Lewis's Gymnastics, they may be practiced alone, or in companies, large or small, and by persons of both sexes and all ages.

It certainly is unnecessary to dwell upon the restorative and hygienic advantages of regular systematic exercise. Every reader of this work has seen cases, in which confirmed invalids have been restored to health, by leaving a city life for agricultural or horticultural pursuits, by submitting to the toilsome life of a sailor, or by patriotically assuming the duties of a soldier.

In introducing the system of Free Gymnastics, described and illustrated in the following pages, the writer has introduced movements that have been described and illustrated before; and he has introduced movements that have not before been described and illustrated. Though many of the movements have long been common property, the order of arranging and the mode of describing the movements are his own. The illustrations are all sketched from life, and all save one taken from his positions. As the instructions are designed for females, as much as for males, it may be thought by some that females should have been sketched in many of the positions; but the labor of standing for an artist to take a correct sketch is not light, even in an easy position, while in many of the positions given it is very severe; more severe than most persons, male or female, would be willing to submit to. Aside from the labor of standing to be sketched, the costume worn by ladies would often prevent the artist from showing the exact position. Hence, it has been thought best by publishers and author, to present a female, only for the purpose of showing the costume worn by them, when exercising.

But no position is illustrated that is not taken, and no movement described that is not made by ladies in various parts of our land.

With the firm belief that thousands, yes, tens of thousands, of his countrymen and countrywomen will follow the directions given in

these pages, and derive incalculable benefits therefrom, the author cheerfully submits them to a discerning public.

## PRELIMINARIES.

While it is of the utmost importance, at all times, that our lungs should receive a full supply of pure air, it is doubly so when we are exercising vigorously. At such times the blood courses through the system more copiously, and the lungs demand a more plentiful supply of pure air. If this supply be withheld, or if the air inhaled be impure, so far from receiving benefit from the exercise, we may receive positive injury.

Hence, the room should always be well ventilated, and, while practicing in cold weather, be kept at a temperature of about 60°. To do this, let the temperature of the room be raised to 65°, before commencing to practice; and, as the company commences to practice, let ventilators be opened in such a way as to reduce the temperature a few degrees. When done practicing, let the temperature again be



FIG. 1.



FIG. 2.

raised, so as to avoid the sudden checking of perspiration. The room should be entirely free from dust; hence, a room with a carpet should be avoided.

AND THE CLOTHING should be light and very loose. Gentlemen can prepare for the exercises by removing their coats, and, if they choose

their vests; or they can wear a loose jacket, as shown in Fig. 1 Ladies will find it to their advantage to wear short dresses and Turkish pantaloons, as shown in Fig. 2. Corsets and tight belts should be left off—*during the exercises*, at least, if not at all times. Ladies wishing to go from home to the place of exercise, and yet unwilling to be seen on the street in the gymnastic costume, can, after putting it on, put on a dress skirt and a basque, and thus appear on the street. The removal of these outer garments is the work of but a moment.

I have said that the exercises may be taken alone (and one may dance alone), but they will be found much more pleasant and beneficial if taken in companies. Therefore, in giving directions, I will always suppose myself addressing a *company* of learners.

I have also said that the exercises may be taken "in any room of a size to accommodate the company of performers." Each performer needs a little more space at the side than he can cover with his arms extended horizontally, and about three feet in front, and as much in rear of himself. Thus it will be seen that he needs about six by eight feet. But as the furniture of a school-room is so low that our hands will pass over it, we often perform in the aisles of such rooms, sometimes facing to the front of the room, and at other times to one side. A few persons may perform in a bed-room, an office, or a work-shop.

While this may be done, it is often practicable to have the use of a room better adapted to the necessities or convenience of a class of performers. In some localities we can have access to a lecture-room, with movable seats, or to a ball-room, or a vacant store-room. I have used all the different rooms named above. I have even used a church. I have often used the lecture-room of a church.

I will now describe a room, such as I would *choose* to have for a company of forty performers. Having done so, I will leave it to the good judgment of my readers to select, or prepare, a suitable room for companies of a less number.

The inside measure of such a room should be forty-two by fifty-two feet. The ceiling should be high.

On page 1150 is a diagram of a room made on a scale of twelve feet to the inch.

There should be a stage across one end of the room, eight feet wide, and of a hight suitable to the hight of the ceiling. If the ceiling will allow of it, let there be a space in the middle of the stage, twelve feet long, that is four feet high. The space marked B represents this part. The rest of the stage may be fifteen inches lower than the center. The ends, marked A and C, represent these spaces. The middle space is for the teacher or leader to occupy The ends are for the music, and for visitors. It is very desirable to provide for visitors elsewhere

than on the floor with the performers. In front of the stage there should be a space of six feet in width, and one of the same width in front of the rear wall. They are marked in the diagram D and E. On each side of the room there should be a space of five feet in width. These spaces are marked F and G. Seats should be placed against the walls for the occasional use of the performers.

Within the spaces D, E, F and G, we have an area of thirty-two feet square. This square area should be laid off in smaller squares, by striking chalk lines at intervals of four feet. At one-half of these points of intersection, places should be marked upon which the performers are to stand. See the diagram.

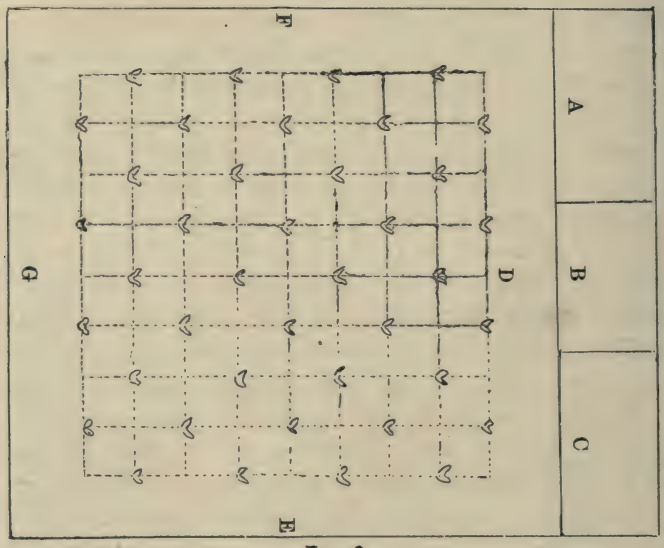



FIG. 8.

It will be seen that the performers are at eight feet distance, rank and file.

The marking is done thus: lay a sheet of tin on the floor; let a man stand on it, with his heels touching, and his toes turned out at an angle of about seventy degrees. Now let a tinner mark around his feet, and cut out a stencil pattern. Lay this pattern on the floor, at the points of intersection that are to be occupied by the performers, and paint the shape of the feet, as shown in the diagram. Black paint, without oil, may be used; or a red paint may be used. I like the latter best. The whole size of the foot may be covered with paint, or a narrow stripe may be painted, to show the outer edge of the foot. I prefer the latter.

When the owner of the room will not permit the use of paint, red chalk may be used instead of paint, renewing the marks as they are erased.

## FORMATION OF CLASSES.

When permission can not be obtained even to mark the floor with red chalk, classes may be formed by arranging them in ranks, the pupils standing so far apart, that by raising their right arms each pupil can just reach the shoulder of his "right hand man." The teacher should know before hand how many there should be in a rank, and how many ranks there are to be. Having formed them in ranks, he can command, "MEASURE—DISTANCE." This is done by each pupil raising the right arm, and so adjusting himself, that he can just touch the shoulder of his "right hand man."

*Teacher.* "FIRST—POSITION." (See directions on page 1152, and also Fig. 1.)

*Teacher.* "BY RANKS—NUMBER."

It is done.

*Teacher.* "EVEN NUMBERS," (or odd, as the case may be) "*to the front, four feet*—MARCH."

This order being obeyed, the class is formed.

## MUSIC.

Soldiers *can* march without music, and people *can* practice the following exercise without music, but both can be done much more satisfactorily with music. Almost any instrument may be used. The piano, the melodeon, or the violin is the best. If several instruments are used, it is so much the better. In the absence of music, time should be beaten on something that can be heard by all the performers. A bass drum is the best for this purpose; next to that is a snare drum, with the snares removed. A small bell may be used, striking it with a key or a knife.

When music is employed, let the tunes be simple and easy, in common time, having four or eight beats in a strain. The *accent* of the movements is to be made *with the beat.* Experience is to be our guide as to how fast time we need. Changes, from one set of movements to another, are to be made at the end of strains. The consecutive movements are so arranged that the changes can be made without rests, except in a very few cases; which will be duly noticed in the proper place.

The "*strains*" spoken of in the following pages, are strains of eight beats. When music of four beats in a strain is employed, as it often is, we have only to take two strains for one, and to make our changes accordingly.

When changes are made requiring a new commencing position the reader must not suppose that we *remain* in that position, however

fully the manner of taking the position may be described. We come to the position often only for a moment, and at other times we may rather be said to *pass through* the position, than to *stop in* it. The position is usually taken on the first half beat of the strain, and is usually returned to on each half beat that follows.

When a class is organized, the leader or teacher should take a place at one end of the room, facing his class. In teaching, the leader should execute, with the class, all the movements demanded of it, until his class can execute them without the aid of a living example. The leader should be able to execute the movements left-handed, that is, he should use the left hand when the members of his class are using their right hands, and *vice versa*. This ability to work left-handed is of the utmost importance; and it is more easily secured than many will at first suppose.

It is best that but few "words of command" be used; but that prompt and implicit obedience be given to those *few*. As a rule, the changes from one series of movements to another should be indicated by the music, or if no music is employed, the performers should count the beats, and make the changes, as hereafter directed.

With a class organized as already directed, and the teacher before it, he may say, "CLASS—ATTENTION." All eyes should be turned to him.

*Teacher.* "FIRST—POSITION."

On the word "*First*," the class should stand ready to take the position to be indicated, but no member should move until the word "*Position*" is spoken; and this word should not be spoken until the teacher sees that he has the attention of every member of the class, and that all are ready to obey on hearing the word "*Position*."

On hearing the word "*Position*," each member of the class should take an erect position, standing on both feet, with the heels touching, toes turned out, and the hands at the side, as shown in Fig. 1.

*Teacher.* "SECOND—POSITION."—On hearing the word "*Position*," the pupils should take a position differing from the *First Position* only in this: The hands should be placed on the hips, with the thumbs pressing the abdominal, and the fingers the dorsal muscles. The elbows should be pressed back. See Fig. 2.

*Teacher.* "*Movements of Section First*—COMMENCING—POSITION."—On hearing this, the pupils should take the position described and illustrated in Section First.

The term "*Commencing Position*," is definite only when the class is told which of the many "*Commencing* Positions" is required of them; and that can best be done by referring to the section in which the required "*Commencing* Position" is described. If, in giving that

command, any other section is named than Section First, the Commencing Position of that section should be taken.

When practicing upon a new movement, instead of making the changes as directed in the following pages, at the end of two, four, or eight beats, the teacher should require a movement to be repeated until it is made with accuracy, or until, in his judgment, a greater

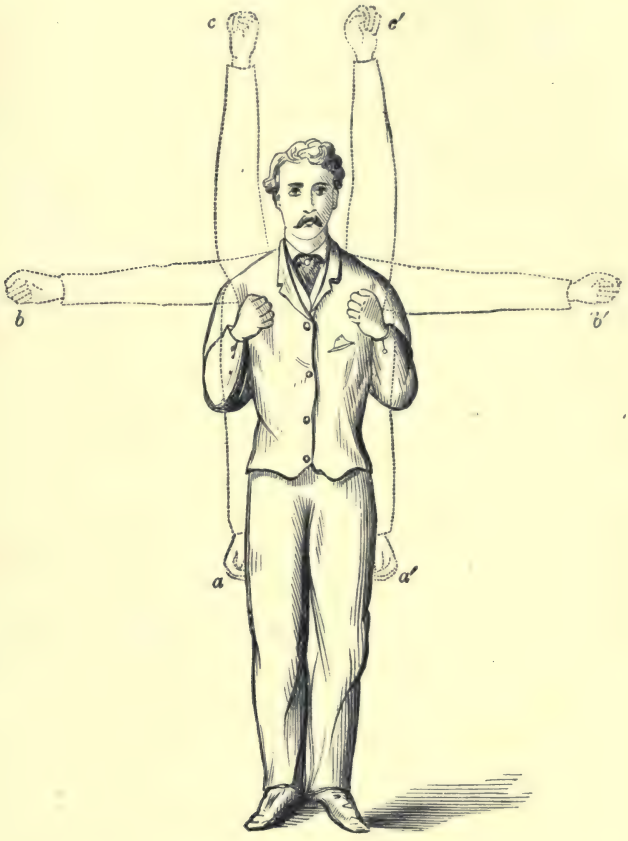



FIG. 4

number of repetitions, at that time, would not be advantageous. If the movement is being made with the right hand, he may then call out, "THE OTHER HAND;" or if with the right foot, "THE OTHER FOOT." If the left hand or foot is employed, he may call out "ALTERNATE," and

NOTE.—The following abbreviations will be used, viz.: R. for right; L. for left; Alt. for alternate, or alternately; Sim. for simultaneous, or simultaneously; Pos. for position; Sec. for section; Mov. for movement, or movements; Com. for commencing; hence, Com Pos. for Commencing Position.

after alternate movements, he may call for simultaneous movements by saying, "SIMULTANEOUSLY," or "BOTH TOGETHER."

In obeying these commands, care should be taken to keep time, that is, all changes should be made without loss of time, and in such a manner as to enable us to mark the time, at each beat.

## EXERCISES.

Sec. 1.—COMMENCING POS.—The same as the first Pos., Fig. 1, except that the fists must be placed on the sides of the chests, and the elbows be crowded down and back, as shown in Fig. 4. Mov.—With the R. fist, strike down with the beat of the music, as shown by the dotted arm at *a*, Fig. 4, through four beats, returning to the commencing Pos., on each half beat. On the fifth beat, strike down with the L. fist, as shown by the dotted arm, Fig. 4. *a'*,* continuing through four beats, returning to the commencing Pos. on each half beat. Through the next four beats, strike down with the R. and the L. fists in Alt., the R. fist reaching *a*, Fig. 4, on each beat, and the L. fist reaching *a'* on each half beat. During the next four beats, repeat these movements with both fists Sim.

During the next two strains, repeat the above Mov. at the side, R., L., Alt., and Sim., as shown by the dotted arms, Fig. 4, *b* and *b'*.

During the next two strains, repeat the above Mov., striking up. See Fig. 4, *c* and *c'*. The same in front.

Sec. 2.—On the first beat of the next strain, strike down with the R. fist; on the second with the L.; on the third with both, the R. reaching *a*, Fig. 4, just with the beat, and the L. *a'* just after the beat; and on the fourth strike down with both Sim. Repeat these Mov. at the side, up, and in front, coming to the commencing Pos. as before, at each half beat.

SEC. 3.—On the first half beat, strike down with the R., and on the second with the L. fist. On the third and fourth beats, clap the open hands several times, keeping time with the music. On the fourth half-beat, come to the commencing Pos. Repeat the same at the side, up, and in front, ending in the second Pos. See Fig. 2.

REMARK.—Explanation will now be given, "once for all," how the terms "Step" and "Lunge" will be used. In a "*Step*," we keep the body erect and reach one foot out in any given direction, touching the floor with the toes of the extended foot, as shown in Fig. 5. The weight of the body is supported by the other foot and leg. The knee of the supporting leg is to be bent, but the knee of the extended leg is not to be bent. While standing in this Pos., the muscles of the supporting thigh, the abdominal and the dorsal muscles will be very rigid.

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*The mark *a'* is read *a prime*, and *b'* is read *b prime*, etc.

In a "*Lunge*," one foot "steps" from the first Pos. in any given direction, while the other foot remains in the first Pos., as shown in Fig. 6; or the toes keep their place and the heel is raised, as shown in Fig 7. The knee of the extended leg is bent, but the other knee should not be bent. The body leans in the direction of the extended foot, so far as to keep in a line with the other leg, as in Figs. 6 and 7. The weight of the body rests on the extended leg. When the heel of the foot that remains in Pos. is not raised, the entire sole of the foot *must retain* its Pos. on the floor, and the ankle *must* be bent to



FIG. 5.



FIG. 6.

enable it to do so. At first this will be difficult. The learner will be disposed to turn the foot on to the side, thus favoring the ankle. The *Lunge* gives great rigidity to the muscles of the thigh, and exercises most of the muscles of the body.

Sec. 4.—COM. POS.—As at the close of Sec. 3. MOV.—On the first beat, *step* directly forward with the R. foot, returning to the Com. Pos. on the following half beat. On the second beat, *step* forward with the L. foot and return to the Com. Pos. on the following half beat. Thus, on the successive beats, step first with the R. and then with the L. foot, as follows: diagonally forward, at the side, diagonally back, directly back, cross behind and diagonally back, cross behind and at the side, cross in front. This will occupy two strains.

Sec. 5.—COM. POS.—As in Sec. 4. MOV.—On the first beat, lunge diagonally forward to the right, making a short lunge. See Fig. 8.

Remain in that Pos. during the next half beat. On the second beat lunge a little farther (see the dotted part of Fig. 8), retaining the new Pos. for half a beat. On the third beat, lunge still farther, and retain the new Pos. as above. On the fourth beat, return to the Com. Pos. On the next four beats, repeat these Mov. with the L. foot. On the next four beats, lunge diagonally back on the right, standing, and increasing the length of the lunge, and returning to the Com. Pos., as above. On the next four beats, repeat these Mov. with the L. foot.

Sec. 6.—Com. Pos.—The Second Pos. as in the last three Sec Mov.—On the first beat, twist the body to the R. as far as possible



Fig. 7.



Fig. 8.

On the following half beat, resume the Com. Pos. On the second beat, twist the body to the L., and on the following half beat, resume the Com. Pos. Continue through eight beats. During the next eight beats, bend the body to the R. and the L., in Alt., resuming the Com. Pos. on each half beat. During the next eight beats, bend forward and backward in Alt., as above. On the first beat of the next strain, bend forward and stand in that Pos. for half a beat. On the second beat, carry the body, without rising to an erect Pos., to the R. side, and stand as above. Thus continue revolving the body, passing from the R. side to directly back, thence to the L. side, and thence forward. Now change the direction, passing from the front to the L. side, then

back, and then to the R. side. On the next half beat, resume the second Pos.

Sec. 7.—Com. Pos.—The Second Pos. Mov.—With the head make movements corresponding in direction and number with those described in Sec. 6, coming, at the close, to the Com. Pos. of Sec. 1.

Sec. 8.—Com. Pos.—The same as in Sec. 1. Mov.—Strike down and then up in Alt. with the R. fist through four beats, stopping in the Com. Pos. at every half beat. Repeat with the L. fist. During the next four beats, strike down with the R. fist, and up with the L., on the first and third beats, and up with the R. and down with the L. on the second and fourth beats, stopping on the half beats as above.



Fig. 9.




Fig. 10.

During the next four beats strike down and up in Alt., with both fists moving simultaneously.

Sec. 9.—Com. Pos.—Same as in Sec. 8. Mov.—Strike on the first beat, with the R. fist, horizontally to the right, twisting the body to the right and looking in the direction of the blow. On the second beat strike with the R. fist to the left, twisting and looking in the direction of the blow, and thus continue striking to the right and the left in Alt. through the strain, stopping in the Com. Pos. at each half beat, as shown in Fig. 9. Repeat with the L. fist. With both fists strike as above to the right and the left in Alt., through one strain, twisting and stopping as above directed. Twist the body to the right,

and strike to the right, through four beats, with both fists. The same to the left.

REMARK.—Do *not* permit the feet to be moved during this last series of Mov.

Sec. 10.— COM. POS.—The Second Pos. MOV.—On the first beat, kick diagonally forward with the R. foot, as shown in the solid part of Fig. 10, *a*. On the half beat that follows let the foot drop, holding the thigh in its last Pos., as shown in the dotted part of Fig. 10, *b*. On the second and third beats throw the foot to *a* again, and on the half beats let it drop again to *b*. On the fourth beat, resume the Sec Pos. The same with the L. foot. Repeat with the R. and then with the L. foot. As the L. foot is brought to the floor, on the eighth beat of the second strain, let the arms drop to the side as in the first Pos., except that the fists are to be closed.

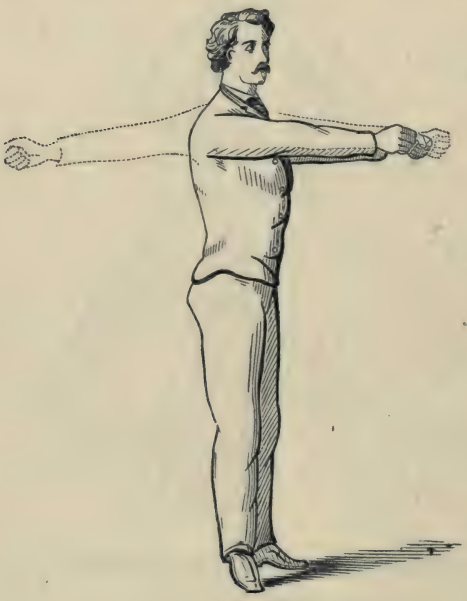


FIG. 11.



FIG. 12.

Sec. 11.—COM. POS.—As described at the close of the last section. MOV.—On each of the next four beats, swing the R. fist to the vertical, passing up in front, in a vertical plane, and return to the side, at each half beat. Repeat with the L. fist. The same in Alt., through four beats, the R. fist going up with the beat, and the L. with the half beat. Repeat with both fists Sim., through the next four beats.

Sec. 12.—COM. POS.—As in Sec. 11. MOV.—The same as in Sec. 11, except that the arms pass up in a vertical plane at the side.

REMARK.—Care must be taken that the elbows are not bent, and that the body and head are not inclined in any direction.

Sec. 13.—COM. POS.—Arms horizontal in front, with the fists clenched, as shown in the solid part of Fig. 11. MOV.—At each beat, strike back on a horizontal plane, as far as possible, as shown in the dotted part of Fig. 11. Continue through the strain.

REMARK.—Do not let the arms fall below the horizontal plane, nor permit the body to be thrown forward.

Sec. 14.—COM. POS.—The first Pos., except that the fists are to be closed. MOV.—Raise the R. shoulder, on each of the next four beats, as shown by the dotted shoulder of Fig. 12. Repeat with the L. shoulder. Repeat in Alt., the R. shoulder being raised with the beat, and the L. with the half beat. Repeat with both shoulders Sim.

REMARK.—Care must be taken to keep the fists clinched, and not to bend the elbows.

Sec. 15.—COM. POS.—As in Sec. 14, except that the palms are to be turned forward. MOV.—On the first four beats, open the hands, spreading the fingers, and stretching them back as far as possible, as shown by the dotted fingers of Fig. 12. On the next half beat, turn the palms back, and open as before on the next four beats. On the first half beat of the next strain, reach the arms out horizontally, at the side, with the palms down. Repeat the opening of the hands as above, turning the palms up on the fifth half beat. Repeat with the arms vertical, the palms being back on the first four beats, and forward on the next four. Repeat with the arms horizontal in front, the palms being down on the first four beats, and up on the second four beats.

Sec. 16.—COM. POS.—Bend the knees a little, throw the body a little forward, by bending at the hips, but do not curve the spine forward, and reach the hands diagonally down and forward, as shown in Fig. 13. This Pos., like most of the Pos., is to be taken on the first half beat of the strain. MOV.—Keeping the arms nearly parallel, swing them around to the right, on the first half beat, twisting the body slightly, as shown by the dotted part of Fig. 13. On the second beat swing to the left, as in mowing, and thus continue through the strain.

On the first beat of the next strain, straighten the knees and hips, lean the body a little back, reach up with the arms, swinging them around to the right, and, on the second beat, to the left, as if to trim a high hedge with a scythe. Continue through the strain.

Sec. 17.—COM. POS.—The Second Pos. MOV.—Keeping the hands on the hips, swing the R. elbow as far back as possible, through one

strain, going back with the beat, and continuing through the strain The L. elbow the same. The same with both Sim.

Sec. 18.—Com. Pos.—The same as the Com. Pos. Sec. 1, Fig. 4 Mov.—On the first beat, *Lunge* diagonally forward to the right, rest

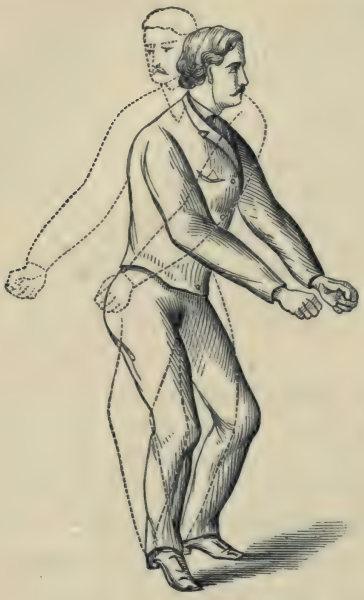


Fig. 13.



Fig. 14.

ing on the toes of the L. foot, as shown in Fig. 7. On the next six beats, strike down with both fists, and return to the Com. Pos. on the eighth beat. The same on the left.

Sec. 19.—Com. Pos.—The Second Pos. Mov.—On the first beat *Lunge* diagonally forward on the right, keeping the L. foot in the first Pos., as shown in Fig. 14. On the next beat, straighten the R. knee, as shown in the dotted part of Fig. 14, and bend it again on the next beat, and thus sway backward and forward on each beat to the seventh, coming to the Com. Pos. at the end of the strain. The same on the left. The same diagonally back on the right, as shown in Fig. 15. The same on the left.

Sec. 20.—Com. Pos.—The Second Pos. Mov.—On the first beat Lunge diagonally forward, to the right, as shown in Fig. 6, except that the body and neck are to be twisted to the left, as far as possible, and the eyes turned to the left. Stand in that Pos. through the next six beats, and return to the Com. Pos. with the close of the strain The same on the left, twisting to the right. Lunge diagonally back on the right, as shown in the solid part of Fig. 15, except that the

body and neck are to be twisted to the left. Stand and return to the Com. Pos. as above. The same on the left, twisting to the right.

Sec. 21.—Com. Pos.—The same as the Com. Pos. of Sec. 1, Fig. 4. Mov.—On each half beat of the strain, reach the R. fist out at the

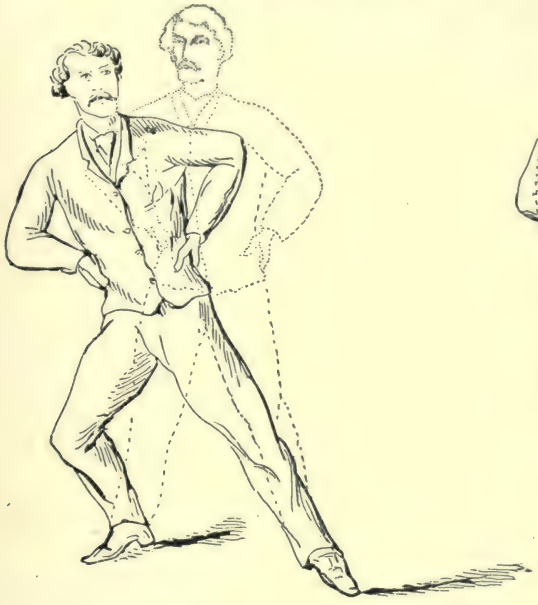


Fig. 15.

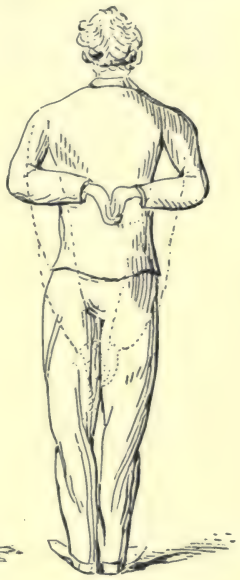


Fig. 16.

side, and on each beat strike a heavy blow on the R. side of the chest, placing the first blow quite on the upper part of the chest, the second just below the first, and so on to the fourth. The fifth blow is to be struck where the fourth was, the sixth just above that place, and so on to the eighth, which is placed where the first was. Repeat on the left. Repeat in Alt., the R. fist striking with the beat, and the L. with the half beat. Repeat with both Sim.

Remark.—Be careful that the lungs are kept full of air during this exercise. Persons unaccustomed to this exercise, especially if the lungs are weak, should commence with light blows; and if the exercise is painful, or even disagreeable to them, they should omit a part of it, standing still, while the rest of the class go on with the performance.

Sec. 22.—Com. Pos.—Clinch the hands upon the back, by interlacing the fingers. Raise the hands as high as possible. See Fig. 16. This Pos. must be taken on the first half beat. Mov.—On each beat of the strain, thrust the hands, thus clinched, down as far as possible, as

shown in the dotted part of Fig. 16, keeping the muscles of the body and legs quite rigid.

Sec. 23.—Com. Pos.—The same as the first Pos., except that the fists are to be clinched, and the palms turned forward. Mov.—On each beat of the strain, twist the arms as far as possible, turning the palms toward the thighs, and back, resuming the Com. Pos on each half beat. On the first half beat of the next strain,



Fig. 16.



Fig. 17.

extend the arms horizontally at the side, with the palms up, the fists still being clinched. Twist as above, turning the palms forward, down and back. The same with the arms vertical and the palms forward, turning the palms in and back. The same with the arms horizontal in front, and the palms up, turning the palms in and down.

Sec. 24.—Com. Pos.—As at the close of Sec. 23, except that the hands are to be open, and the palms toward each other. Mov.—Without bending the elbows, twist the body on the first beat, drawing the R. shoulder back, and thrusting the L. forward, until the hands pass each other, as seen in Fig. 17. On the next beat, twist the other way, reversing the Pos. of the shoulders, and thus continue through the strain.

Remark.—Great care must be taken not to bend either elbow, and not to contract the muscles of either arm, so as to aid in bringing back the hand. Make the movement one entirely of the body and shoulders.

Sec. 25.—Com. Pos.—The same as the first Pos., except that the fists are to be closed. Mov.—Revolve the R. shoulder through four beats, carrying it back, up, and forward, and returning to the Com. Pos. on each beat. The same with the L. shoulder. The same with both in Alt. The same with both Sim. Repeat with the R., the L., and with both in Alt., and Sim., reversing the direction of the shoulders.

Sec. 26.—Com. Pos.—Fists at the armpits. Mov.—Strike down with the R. fist through four beats, returning to the Com. Pos. on each half beat. The same with the L. fist. The same with both in Alt. The same with both Sim.

Sec. 27.—Com. Pos.—Both fists on the shoulders. Mov.—Strike up with the R. fist through four beats, returning to the shoulder on the half beats. The same with the L. fist. The same with both in Alt. The same with both Sim.

Sec. 28.—Com. Pos.—The R. fist at the armpit, the L. on the shoulder. Mov.—Strike down with the R. and up with the L. fist, through four beats, returning to the Com. Pos. on each half beat, until the fifth, when the R. fist comes to the shoulder, and the L. fist to the armpit. Strike up with the R., and down with the L. fist through the next four beats, returning on the half beats. On the first beat of the next strain, bring the fists to the Com. Pos. again. Through the next four beats, strike with both fists in Alt. from armpit and shoulder, the R. fist starting from the armpit, and the L. from the shoulder. On the fifth half beat bring both fists to the armpits. During the next four beats, strike in Alt. from armpits and shoulders, both fists going down from the armpits on the first and third beats, and up from the shoulder on the second and fourth beats.

Sec. 29.—Com. Pos.—The Second Pos. Mov.—Hop on the R. foot, twice to a beat, through four beats, striking on the toes each time. The same on the L. foot. The same on both in Alt., hopping twice on the R. foot, and then twice on the L. foot, through four beats. The same on both feet Sim.

Remark.—In the Mov. of Sec. 29, we must not move out of place forward or backward, or to either side.

Sec. 30.—Pos.—The second Pos., except that the heels are raised, and we stand on the toes, as shown in Fig. 18. Mov.—Spring or jump from the floor, striking on the toes on the first beat, with the feet separated, as shown in the dotted part of Fig. 18, returning to the Com. Pos., on the next half beat; and so continue through the strain.

Sec. 31.—Com. Pos.—As in Sec. 30. Mov.—Spring from the floor, striking on the toes with the first beat, the R. foot reaching far forward, and the L. as far back, of the starting point, as shown in

Fig. 19. Spring again, and, on the next beat, alight with the Pos. of the feet reversed. Continue through one strain. Repeat through the next strain, except that the Mov. is to be made twice to a beat.



Fig. 18.



Fig. 19.

Sec. 32.—Com. Pos.—The same as in Sec. 30. Mov.—Spring from the floor, and, on the first beat, alight on the toes, with the feet crossed, the R. foot being in front. Spring again, and, on the next beat, alight with the Pos. of the feet reversed, and thus continue through the strain.

Sec. 33.—Com. Pos.—The Second Pos. Mov.—On the first beat, fold the arms on the chest, and thus stand perfectly still through the strain.

Sec. 34.—Com. Pos.—That taken on the first beat of Sec. 33. Mov.—On the first beat, make a short lunge diagonally forward to the right, as shown in the solid part of Fig. 8, Sec. 5, clapping the hands together smartly just with the beat. Be careful that the body leans so as to be just in line with the L. leg. Stand perfectly still, keeping the body and limbs just in the Pos. they were at the moment the foot touched the floor and the hands against each other, until after the third beat, and then suddenly resume the Com. Pos. On the fifth beat, repeat this Mov. diagonally forward on the left, coming to the Com. Pos. on the eighth beat. On the first beat of the next strain, make a short lunge diagonally back on the right, clapping the hands, standing, and resuming the Com. Pos. as above directed. During the next four beats, repeat

this Mov. diagonally back on the left. On the first beat of the next strain, make a short lunge diagonally forward on the right, clapping the hands as above, and remaining in that Pos. during the next half beat. On the next beat, lunge a little further, as shown in the dotted part of Fig. 8, Sec. 5, clapping the hands with the beat. Stand in that Pos. until after the third beat, and come again to the Com. Pos. on the fourth beat. Repeat this Mov. diagonally forward on the left, diagonally back on the right, and diagonally back on the left, coming to the Com. Pos. on the fourth and eighth beats of each strain.

REMARK.—If the Movs. described in Sec. 34 are executed with accuracy as to Pos. and time, and in reference to being perfectly immovable when standing still, the Physiological and the Artistical effect are very fine. But in order that they may be thus accurate, the movements must be executed with great rapidity, the greater part of the time being consumed in posturing.

Sec. 35.—COM. POS.—The First Pos. MOV.—Twist both arms so as to throw the thumbs out and back, then close the hands as though grasping the handle of a gimlet, and twist the arms so as to throw the thumbs forward and in, acting as though turning a gimlet which offers great resistance. The Mov. just described is to be completed with the first beat. Repeat it through the remainder of the strain, letting go and clinching the handle of the imaginary gimlet with each movement. On the first half beat of the next strain, extend the arms horizontally at the side, opening the hands, and twisting the arms so as to throw the thumbs up and back. Again clinch the imaginary gimlet, and, with the first beat, twist the arms so as to throw the thumbs forward and down. Continue through the strain. On the first half beat of the next strain, reach the arms directly up, twisting them so as to throw the thumbs forward and out. Again clinch the imaginary gimlet, and twist the arms so as to throw the thumbs in and back, and continue through the strain. Repeat this Mov. in front, turning the thumbs up and out before grasping the imaginary gimlet, and in and down after grasping it.



FIG. 20.

Sec. 36.—COM. POS.—The Second Pos. MOV.—Standing on the L. foot, raise the R. foot, on the first half beat, pointing the R. leg diag-

onally down and forward, with the toes of the R. foot elevated as far as possible, as shown in Fig. 20. Without changing the Pos. of the leg, press the toes of the R. foot down on the first beat, as shown by the dotted part of Fig. 20, and raise them on the next half beat, and thus continue until the last beat, on which the R. foot must be brought to the floor. The same with change of feet.

Sec. 37.—Com. Pos.—As in Sec. 36. Mov.—On the first half beat, make the first movement of the last Sec., except that the toes of the R. foot are to be turned out as far as possible. On the first beat, turn them in as far as possible, and out on the next half beat, and thus continue until the last beat of the strain, when the R. foot must be brought to the floor. The same with the feet changed.

Sec. 38.—Com. Pos.—As in Sec. 37. Mov.—Standing on the L. foot, raise the R. foot on the first half beat, as directed in Sec. 36, and shown in the solid part of Fig. 20. Describe a circumference with the toes, carrying them in and down, and out and up, reaching the lowest point of the circumference on each beat, and the highest on each half beat. Continue through the strain, bringing the R. foot to the floor on the last beat. The same with the feet changed.

Sec. 39.—Com. Pos.—The same as in Sec. 38. Mov.—The same as in Sec. 38, except that the circumference is to be described by carrying the toes out and down, and in and up, thus reversing the direction of the revolving toes.

Remark.—In the Mov. described in Sec. 36 to 39, inclusive, be very careful not to twist the thigh; but make the Mov. one of the ankle exclusively.

Sec. 40.—Com. Pos.—As in the first Pos., except that the elbows are to be pressed against the side, and are to be flexed, so as to press the forearms against the upper arm, and the fists are to be clinched, as shown in the solid part of Fig. 21. Mov.—Strike down with the R. fist, as shown in the dotted part of Fig. 21, during four beats, using the elbow joint exclusively. The same with the L. fist. The same with both in Alt. The same with both Sim., stopping at the eighth beat with the fists down, as shown in the dotted part of Fig. 21.

Sec. 41.—Com. Pos.—As described at the close of Sec. 40. Mov.—Strike up with the R. fist, during four beats, reversing the direction of the Mov. described in Sec. 40. The same with the L. fist, with both in Alt., with both Sim.

Sec. 42.—Com. Pos.—As the first, except that the upper arms are to be extended at the side, and the elbows to be bent, so as to permit the forearm to press the upper arm, and the fists are to be closed, as shown in the solid part of the R. arm of Fig. 22. Mov.—Strike out

with the R. fist, as shown in the dotted part of the R. arm of Fig 22, during four beats, being careful to keep the upper arm perfectly still. The same with the L. arm., with both in Alt., and with both Sim., stopping on the eighth beat with both fists extended, as shown in the dotted part of the R. arm, Fig. 22.

Sec. 43.—Com. Pos.—As at the close of Sec. 42. Mov.—Strike in with the R. fist during four beats, reversing the direction of the Mov. described in Sec. 42. The same with the L. fist, with both in Alt., and with both Sim., stopping on the eighth beat, with the fists, as shown in the solid part of the R. arm of Fig. 22.

Sec. 44.—Com. Pos.—The same as in Sec. 42, except that the upper arms are to be twisted forward, so as to bring the forearms under them, as shown in the solid part of the L. arm of Fig. 22. Mov.—

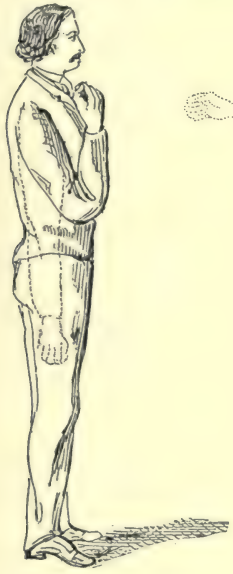


Fig. 21.



Fig. 22.

Strike out with the R. fist, with the L. fist, with both in Alt., and with both Sim., just as directed in Sec. 42, and as shown in the dotted part of the L. arm of Fig. 22, stopping as directed in Sec. 42.

Sec. 45.—Com. Pos.—As at the close of Sec. 44. Mov.—Strike in with the R. fist, with the L. fist, with both in Alt., and with both Sim., as directed in Sec. 43, and stopping as there directed, thus reversing the Mov. of Sec 44.

Sec. 46.—Com. Pos.—The same as in Sec. 40, except that the arms, bent as there directed, are to be elevated in front until the elbows are on a level with the shoulders. Mov.—Strike forward with the R. fist,

keeping the upper arm perfectly still, with the L. fist, with both in Alt., and with both Sim., as in the preceding sections, stopping with both fists extended.

Sec. 47.—Com. Pos.—As at the close of Sec. 46. Mov.—Strike back with the R. fist, with the L. fist, with both in Alt., and with both Sim., reversing the Mov. of Sec. 46, and stopping in the Com. Pos. of that Sec.

Sec. 48.—Com. Pos.—The same as at the close of Sec. 47, except that the upper arms are to be twisted so as to bring the forearms under the upper arms. The upper arms are to be kept as nearly parallel as possible. Mov.—Strike forward with the R. fist, with the L. fist, with both in Alt., and with both Sim., as in the preceding sections, stopping with the fists as on the eighth beat.

Sec. 49.—Com. Pos.—As at the close of Sec. 48. Mov.—Strike back with the R. fist, with the L. fist, with both fists in Alt., and with both Sim., reversing the Mov. of Sec. 48.

Remark.—The number of Movements in all the sections from Sec. 40 to Sec. 49, inclusive, corresponds with the number required in Sec. 40, taking two strains for the movements of each Sec.

Sec. 50.—Com. Pos.—The Second Pos. Mov.—On the first beat lunge diagonally forward to the right, as shown in Fig. 7, except that the body and neck are to be twisted to the right, and the eyes turned to the right as far as possible. Stand in that Pos. during the next six beats, and return to the Second Pos., at the close of the strain. The same on the left, twisting to the left. Lunge diagonally back on the right, as shown in the solid part of Fig. 15, Sec. 19, except that the body and neck are to be twisted to the right. Stand and return as above. The same on the left, twisting to the left.

Remark.—By turning to Sec. 20, the reader will see that Sec. 50 calls for a series of movements and posturing, differing from those of Sec. 20 only in the direction of twisting, and the consequent raising of the heel of the stationary foot in the forward lunges. In the postures now described, we twist from the stationary foot; in those described in Sec. 20, toward that foot.

Sec. 51.—Com. Pos.—As the first Pos., except that the arms are to be bent at the elbows, so that the forearms will be at right angles with the upper arms, the elbows are to be pressed against the sides, and the fists are to be clinched and held with the thumbs up. Mov.—Bend the R. wrist so as to throw the fist in, as far as possible, on each beat, and out on each half beat; continuing through four beats. The same with the L. fist. The same with both in Alt., the R. wrist curving in, and the L. out with the beats. Their Pos. are to be reversed on the half beats. The same with both Sim.

Sec. 52.—Com. Pos.—The same as in Sec. 51, except that the thumbs

are to be turned outward. Mov.—Bend the R. wrist so as to throw the fist up on each beat, and down on each half beat; continuing through four beats. The same with the L. fist. The same with both in Alt., the R. wrist curving up, and the L. down with the beats. The same with both acting Sim.

Sec. 53.—Com. Pos.—The same as in Sec. 52, except that the thumbs are to be turned inward. Mov.—Bend the R. wrist so as to throw the fist down on the beat, and up on the half beat, continuing through four beats. The same with the L. fist, with both in Alt., and with both Sim.

Sec. 54.—Com. Pos.—The same as in Sec. 53, except that the thumb of the R. hand is turned out, and that of the L. in. Mov.—On the first beat, bend both wrists, throwing the R. fist up and the L. down, and thus continue through the strain.

Sec. 55.—Com. Pos.—The same as that of Sec. 54, except that the Pos. of the thumbs is reversed. Mov.—Reverse the Mov. of Sec. 54, throwing the R. fist down and the L. up with the beat, to the end of the strain.

Sec. 56.—Com. Pos.—As in Sec. 54. Mov.—Combine the Mov. of Sections 54 and 55, thus: on the first beat throw the R. fist up and the L. down. On the second half beat take the Pos. of Sec. 55, and on the Sec. beat perform the Mov. of that Sec. On the third half beat, take the Pos., and on third beat perform the Mov. of Sec. 54, and thus continue through the strain.

Sec. 57.—Com. Pos.—As described in Sec. 51. Mov.—With the knuckles of the R. fist, describe in the air a horizontal figure eight. In doing this, let the knuckles pass down and in on the first beat, then up and out to the Com. Pos., and pass on down and out, then up and in, coming again to the Com. Pos. in time to pass down and in again on the second beat, and thus continue through the strain. The arrows of the figure eight, show the direction of the knuckles, and the thickened line shows where the knuckles are to be at the beat. The same with the L. fist, making the accent of the Mov. down and in, thus: The same with both fists Sim.





Sec. 58.—Com. Pos.—As in Sec. 57. Mov.—With the knuckles of the R. fist, make the Mov. of Sec. 57; and with those of the L. fist, acting at the same time, reverse the Mov. described for them in that Sec. Continue through one strain. Through the next strain, let both fists reverse the Mov. described in the first part of this Sec.

Sec. 59.—Com. Pos.—As in Sec. 58. Mov.—With the knuckles of the R. fist, describe a circumference, passing in, down, out and up, as shown by the arrows. Pass the



thickened part of the Fig. on the beat. Continue through one strain. The same with the L. fist. The same with both.

Sec. 60.—Com. Pos.—As in Sec. 59. Mov.—With the knuckles of the R. fist describe a circumference, passing out, down, in, and up, as shown by the arrows. Pass the thickened part of the Fig. on the beat. Continue through one strain. The same with the L. fist. The same with both.



Remark.—In all the Mov. described from Sec. 51 to Sec. 60, inclusive, keep the elbows pressed against the sides, and the forearm at right angles with the upper arm, and permit no joint, except the wrist joints, to act. These movements will be found quite difficult at first, but when mastered they will give great strength and flexibility to the



Fig. 23.



Fig. 24.

wrist. To overcome the difficulties of these movements, a good plan is to stand before, and near to, a mirror, on which may be drawn, with a wet finger, the figure to be described with the knuckles Looking into the mirror, the performer will be able to criticise himself.

Sec. 61.—Com. Pos.—The Second Pos. Mov.—On the first beat, stamp with the R. foot; on the second, stamp with the L. foot; on the third, sink to a sitting posture, raising the heels slightly, as shown in the solid part of Fig. 23. On the fourth beat, stand erect, keeping the heels raised, as shown in the dotted part of Fig. 23. Thus continue to sink and rise through the strain.

Sec. 62.—Com. Pos.—The Second Pos. to be taken on the first half beat, by letting the heels come to the floor. Mov.—On the first beat, place the L. foot, with a light stamp, so that it shall point directly to the left. On the second beat, place the R. foot, with a light stamp, at right angles with the L., and its heel against that of the L. On the third, fifth, and seventh beats sink as directed in Sec. 61; and on the even beats rise, as there directed.

Sec. 63.—Com. Pos.—The Second Pos., to be taken as in Sec. 62. Mov.—On the first beat, place the R. foot with a light stamp, so as to point directly to the right. On the second beat, place the L. foot, with a light stamp, at right angles with the R. foot, and its heel against that of the R. Sink and rise as in Sec. 61.

Sec. 64.—Com. Pos.—The second Pos., to be taken as in Sec. 62. Mov.—On the first beat, place the L. foot with a light stamp, so as to point directly to the left. On the second beat, place the R. foot at right angles with the L., and its heel against the middle of the L. foot. Sink and rise as directed in Sec. 61.

Sec. 65 —Com. Pos.—As in Sec. 62. Mov.—On the first beat, place the R. foot, with a light stamp, so as to point directly to the right. On the second beat, place the L. foot, with a light stamp, at right angles with the R., and its heel against the middle of the R. foot. Sink and rise, as directed in Sec. 61.

Sec. 66.—Com. Pos.—As in Sec. 62. Mov.—On the first beat, place the L. foot, with a light stamp, so that it shall point directly to the left. On the second beat, place the R. foot, with a light stamp, at right angles with the L., and with its heel against the toes of the L foot. Sink and rise, as directed in Sec. 61.

Sec. 67.—Com. Pos.—As in Sec. 62. Mov.—On the first beat, place the R. foot, with a light stamp, so that it shall point directly to the right. On the second beat, place the L. foot, with a light stamp, at right angles with the R., with its heel against the toes of the R. foot Sink and rise, as directed in Sec. 61.

Sec. 68.—Com. Pos.—As in Sec. 62. Mov.—On the first beat, place the L. foot, with a light stamp, so as to bring the face to the front. On the second beat, place the R. foot, with a light stamp, so as to bring the face to the front. Stand perfectly still during the remainder of the strain. On the first beat of the next strain, sink through one-fourth of the space, passed through in the Mov. of Sec. 61, raising the heels on the commencement of the sinking. Stand in that Pos. during the next half beat, as shown in the solid part of Fig. 24. On the second beat, sink through another fourth of the space, as shown in the dotted part of Fig. 24. On the third beat, sink through another fourth, and on the last beat sink through the last fourth of the space,

coming to the Pos. shown in the solid part of Fig. 23, Sec. 61. On each of the next four beats, rise through one-fourth of the space passed through in rising, as directed in Sec. 61, coming, on the eighth beat of the strain, to the Pos. shown in the dotted part of Fig. 23. During the next strain, repeat the sinking and rising as above.

REMARK.—In the series of movements described in Sections 62 to 68, inclusive, care must be taken to keep the head and the body erect, the shoulders back, and the chest forward. If the movements are performed as directed, they will be found to be very beneficial, as they give good action to the muscles of the body, legs and feet; but if done in a slovenly manner, with the body bent forward, and the chest drawn in, they will be useless, and they may be injurious.

Sec. 69.—COM. POS.—To be taken on the first half beat. Upper arm horizontal at the side, forearm vertical, fist clinched, and the palms forward. MOV.—Bend the R. wrist so as to throw the R. fist forward on the first four beats, and back on the half beats. The same with the L. fist, on the next four beats. The same with both in Alt., the R. fist being thrown forward, and the L. back on the beats. The same with both Sim.

Sec. 70.—COM. POS.—The same as in Sec. 69, except that the palms are to be in. MOV.—The same as in Sec. 69, except that the accent of the movement is to be made inward.

Sec. 71.—COM. POS.—The same as in Sec. 69, except that the palms are to be out. MOV.—The same as in Sec. 70, except that the accent of the Mov. is to be made outward.

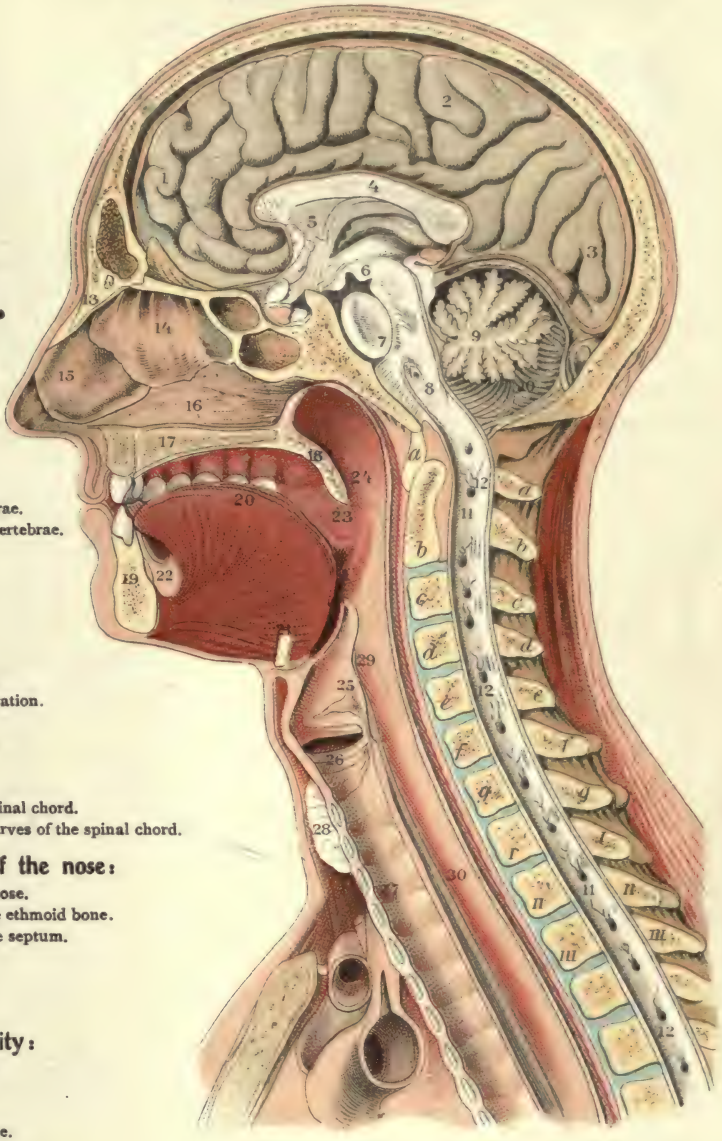
Sec. 72.—POS.—As in Sec. 69. MOV.—With the knuckles of the R. fist, describe a figure 8, as if upon the ceiling. In doing this, the knuckles are to pass out and forward on the first beat, then in and back to the point of commencing; then out and back, on the next half beat, and in and forward again to the point of commencing. Thus continue through the strain. The same with the L. fist. The same with both fists Sim.

Sec. 73.—COM. POS.—As in Sec. 69. MOV.—With the knuckles of the R. fist, describe a figure 8, as if upon the ceiling. In doing this, the knuckles are to pass *in* (instead of *out*, as in Sec. 72), and forward on the first beat, that out and back to the point of commencing; then in and back on the next half beat, and out and forward to the point of commencing. Thus continue through the strain. The same with the L. fist. The same with both fists Sim.

Sec. 74.—COM. POS.—The same as in Sec. 69. MOV.—With the knuckles of the R. fist, describe a figure 8, as directed in Sec. 72, and at the same time, with the knuckles of the L. fist, describe a figure 8, as directed in Sec. 73. Continue through one strain. During the

## D—Longitudinal section through head and neck.

D.



*a.—g.* Cervical Vertebrae.
I, II, III. Thoracic vertebrae.

### I. The brain:

1. Anterior lobe.
2. Parietal lobe.
3. Occipital lobe.
4. The beam.
5. The arch or fornix.
6. The medullary elevation.
7. Pons Varolii.
8. Medulla oblongata.
9. The tree of life.
10. The cerebellum.
11. The canal of the spinal chord.
12. Openings for the nerves of the spinal chord.

### II. The septum of the nose:

13. The bridge of the nose.
14. Vertical plate of the ethmoid bone.
15. The cartilage of the septum.
16. The vomer.

### III. The oral cavity:

17. The hard palate.
18. The soft palate.
19. The lower jaw.
20. The lingual muscle.
21. The tongue-bone.
22. The ligament of the tongue.
23. The tonsils.

### IV. The cavity of the jaws and the larynx:

24. The cavity of the jaws.
25. The epiglottis.
26. The glottis.
27. The windpipe.
28. The thyroid gland.
29. The pharynx.
30. The oesophagus.

next strain, let the knuckles of the R. fist describe a figure 8, as directed in Sec. 73, and those of the L. fist, as directed in Sec. 72.

Sec. 75.—Com. Pos.—The First Pos. Mov.—On the first beat, *Step* Diag. forward with the L. foot, leaning back and raising the R. hand as if about to throw a ball. On the second beat, throw an imaginary ball, with force, in the direction indicated by the L. foot, at the same time leaning the body forward as one does in throwing forcibly. On the third beat, lean backward, over the R. foot, with the body, and at the same time catch the imaginary ball with both hands, as if it had been returned from the direction just thrown. Thus continue throwing with the even beats, and catching with the odd ones, until the seventh beat of the second strain, when it is to be caught for the last time. On the eighth beat of that strain come to the first Pos. On the first beat of the next strain, *Step* Diag. forward with the R. foot,



Fig. 25.




Fig. 26.

and raise the L. hand as for throwing, leaning the body back as above Through the remainder of this strain, and through the next, throw the imaginary ball with the L. hand, and catch with both hands, as above, catching it for the last time on the seventh beat of the second strain, and coming to the first Pos. on the last beat of that strain.

Sec. 76.—Pos.—The First Pos. Mov.—On the first beat, reach both

hands up as far as possible, touching the thumbs and holding the palms forward, as shown in Fig. 25. On the second beat, without bending the knees, touch the middle finger of both hands to the floor, between the feet, or just in front of them, as shown in the dotted part of Fig. 25. Thus continue, touching the floor on the even beats, and stretching the arms up on the odd beats, until the seventh beat. On the eighth beat, bring the arms to the side as in the first Pos. On the first beat of the next strain, raise the hands again as in the first movement of this Sec., and repeat the Mov. of the last strain.

Remark.—Many, perhaps most, learners will find it impossible to touch the floor without bending their knees. Let such persons keep their knees unflexed, and reach down as far as possible, endeavoring to touch the floor. In that way they will strain the muscles of the back part of the legs and of the back, and in time they will be able to touch the floor. Others again will find it easy to touch the floor with the middle finger. Let such touch it with the index finger; and if that be easy, let them shut the hand, and touch it with the knuckles. All should get a strain on the muscles of the back, and of the back of the legs.

Sec. 77.—Com. Pos.—The Second Pos. Mov.—On the first half beat, raise the R. foot and carry it forward a little, as shown in the solid part of Fig. 26, *a*. On the first beat swing it to the left, as shown by the dotted part of Fig. 26, *b*, and return to *a* on the next half beat. Thus continue through four beats. On the fifth beat, swing it to the right, as shown by the dotted part of Fig. 26, *c*, and return to *a* on the half beat, and thus continue through the strain. During the next strain combine these two movements, swinging from *a* to *b* on the odd beats, and from *a* to *c* on the even beats, except that on the eighth beat the R. foot must come to the commencing Pos. of this Sec. Repeat these movements with the L. leg.

Sec. 78.—Com. Pos.—The Second Pos. Mov.—On the first half beat, raise the R. foot and carry it back about as far as it was carried forward in Sec. 77. On the first four beats, swing it to the left, as in Sec. 77, except that it passes behind the L. leg. On the last four beats of the strain, swing it to the right, as in Sec. 77. Repeat with the L. leg.

Sec. 79.—Com. Pos.—The Second Pos. Mov.—Combine the Mov. of Sec. 77 and 78, thus: on the first half beat carry the R. foot forward, as in Sec. 77, Fig. 26, *a*. On the first beat, carry it to the left, Fig. 26, *b*; on the second half beat, return to *a*, and on the second beat pass to *c*. On the following half beat return to the Pos. of the first half beat, Sec. 78. On the third beat, carry the R. foot to the left, passing behind the L. leg, and thus continue until the eighth

beat, when the R. foot is brought to the floor with the beat. The same with the L. leg.

Sec. 80.—Com. Pos.—The Second Pos. Mov.—Standing on the L foot, carry the R. foot directly forward, through four beats, as shown in the solid part of Fig. 20, except that the toes need not be raised above an easy position. Bring the leg to the side of the L. leg on each half beat, without permitting the foot to touch the floor. On the next four beats, carry the foot back about as far as it was carried forward in the first movements of this Sec., bringing the leg to the side of the other, as there directed, on the half beats.

Combine these two movements, carrying the foot forward on the odd and back on the even beats. Continue through one strain, except, that instead of going back on the eighth beat, the foot must come to the floor as in the commencing Pos. The same with the L. foot.

Sec. 81.—Com. Pos.—The Second Pos. Mov.—Standing on the L. foot, describe with the R. foot the arc represented by the dotted line, *a*, *b*, *c*, *d*, Fig. 27, thus: on the first beat carry the R. foot to




Fig. 27.




Fig. 28.

the left, at *a;* on the second, to the front, at *b;* on the third, to the right side, at *c;* and on the fourth, directly back, at *d;* now return, stopping at *c*, *b*, and *a*, on the fifth, sixth, and seventh beats, returning to its Pos. on the floor on the eighth beat. Repeat, with the

same foot, during the next strain. During the next two strains, make the same movements with the L. foot.

Sec. 82.—Pos.—The Second Pos. Mov.—Standing on the L. foot, with the R. foot describe the circumference *a*, *b*, *c*, Fig. 28, thus: on the first beat, carry the foot to *a*, on the second to *b*, on the third to *c*, and on the fourth to the side of the L. foot, but without permitting it to touch the floor. Repeat with the next four beats. The same with the L. foot. During the next strain describe the circumference on the right side twice, changing the direction so as to pass, on the first beat, to *c*, thence to *b*, thence to *a*, and thence to the side of the L. foot. The same on the left.



Fig. 29.



Fig. 30.

Remark.—In the series of Mov. described in Sec. 77 to 82, inclusive, the knee of the moving leg must be kept straight, but without stiffness; and care should be taken to keep the body as erect as possible.

Sec. 83.—Pos.—The Second Pos. Mov.—On the first beat, raise both hands over the R. shoulder, the hands being closed as if grasping the handle of a maul or beetle, the R. being above the L., with its little finger resting upon the fore-finger of the L., as shown in Fig. 29. On the second beat, strike down on the left side, as though striking a wedge in splitting wood, being careful to keep the hands in the same relative Pos., as shown in the dotted part of Fig. 29.

Continue thus through the strain, raising the hands to prepare for the blow on the odd beats, and giving the blow on the even beats. On the first beat of the next strain, change the Pos. of the hands, placing the L. upon the R., and raise them over the L. shoulder. Repeat the movements of the last strain, changing the sides. During the next strain, repeat these movements in Alt., raising the hands over the R. shoulder on the first beat, and striking down on the L. side on the second, changing to the L. shoulder on the third beat, and striking down on the R. side on the fourth beat, and thus continue. On the first beat of the next strain, separate the feet a foot, or a little more, and raise the hands over the head, keeping them in the same relative Pos. as when raised over the R. shoulder. On the second beat strike down, as if to hit a wedge in a log, between the feet, and thus continue through the strain.

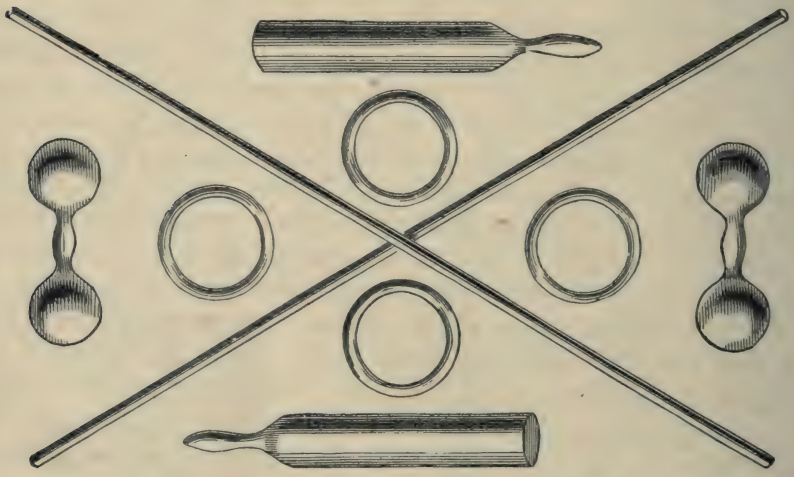
Sec. 84.—Com. Pos.—The Second Pos. Mov.—On the first beat, make a short *lunge* diagonally forward on the right; on the second beat, make a short *lunge* diagonally back on the left, without moving the R. foot from the Pos. it took on the first beat. In both these *lunges*, bring the body to the proper position. On the third beat, straighten the L. knee and bend the R. knee, leaning the body forward so as to form a line with the L. leg. On the fourth beat, straighten the R. knee and bend the L. knee, leaning the body back so as to form a line with the R. leg, and thus continue through the strain, swaying the body forward on the odd beats, and back on the even beats. During the next two strains, sway the body forward on the first and fifth beats, and back on the third and seventh beats, standing in each Pos. through one beat. During the next two strains, sway the body forward on the first, and back on the fifth beat. On the first beat of the next strain, sway the body forward, and stand in that Pos. during the remainder of the strain. On the first beat of the next strain, sway the body back, and there stand during the remainder of the strain. On the first beat of the next strain, sway forward again, and thus remain until the seventh half beat. On the seventh beat, bring the R. foot to the Com. Pos., and on the eighth beat, bring the L. foot to the Com. Pos., keeping the body erect in these last two movements. Repeat on the left, with change of feet.

The above movements in Free Gymnastics are by no means all that may be profitably introduced, nor are they all that have been introduced in practice by the author. But enough have been introduced here to exercise all the muscles of the human frame, and very many more than any company will be likely to execute in one performance.

Besides the two rests of a strain each, that are given in the directions above, others may be introduced at such points as the judgment of the leader shall dictate. Or a class may be rested by having one-

half of it stand still through one or more strains, while the other half performs; the first half resuming the performance, while the half that was performing stands still. Or recesses can be given to the class.

Below is given a cut exhibiting Wands, Rings, Dumb-bells, and Clubs. All, except the Rings, are used by classes occupying positions such as are recommended in the first part of this chapter on Free Gymnastics. The Rings are also used by such classes, but not without change of position. The Free Gymnastics have this advantage over Gymnastics requiring the aid of Apparatus: we save expense, and the trouble that is caused by the care of the Apparatus. But, interesting and exhilarating as the Free Gymnastics are, to *many*, perhaps I ought to say to *most* persons, Gymnastics with light Appa ratus are even more interesting and exhilarating.



Before closing, I will say just a word with regard to the so-called Swedish methods of physical development. The essential of all these methods is the firm contraction of the already fixed, *i. e.*, partially contracted, muscles. The advantage of this system is that the exercise is concentrated, requiring only a few movements, and not requiring any apparatus. The principle involved is to make the body completely rigid, including fixing of the diaphragm, and then proceed with various routine movements. This is a very violent exercise, and produces fatigue in a short time. The exercise, therefore, should cease before fatigue makes its appearance.

# VARIOUS FACTS,

## WHICH MAY BE OF SERVICE.

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**To Destroy Insects on Trees.**—A solution of Whale-oil Soap will destroy the numerous insects that infest trees and shrubbery. Dissolve the Soap in warm Water, making the "suds" of medium strength, and sprinkle the leaves with a Syringe. This specific is sure death to the Caterpillar, Miller, and the army of ravagers that destroy the foliage.

**To Get Clear of Mosquitoes.**—A correspondent of the *Dee* (S. C.) *Times*, gives that journal a recipe for clearing a room of Mosquitoes. He says: I have tried the following and find that it works like a charm: Take of Gum Camphor a piece about one-third the size of an egg, and evaporate it over a lamp or candle, taking care that it does not ignite. The smoke will soon fill the room and expel the Mosquitoes.

**How to Get Rid of Bed-Bugs.**—Bed-Bugs cannot stand hot Alum Water; indeed Alum seems to be death to them in any form. Take, say 2 pounds of Alum, reduce it to a powder, the finer the better, and dissolve it in about 4 quarts of boiling Water; keep the Water hot till the Alum is all dissolved; then apply it hot to every joint, crevice and place about the bedstead, floor, skirting or washboard around the room, and every place where the Bugs are likely to congregate, by means of a brush. A common syringe is an excellent thing to use in applying it to the bedstead. Apply the Water as hot as you can. Apply it freely, and you will hardly be troubled any more that season with Bugs. Whitewash the ceiling with plenty of dissolved Alum in the wash, and there will be an end to their dropping down from thence on to your bed.

**The Unpleasant Odor Produced by Perspiration** is frequently a source of vexation to gentlemen and ladies, some of whom are as subject to its excess as their fellow mortals of another color. Nothing is simpler than the removal of this odor at much less expense, and much more effectually, than by the application of such costly unguents and perfumes as are in use. It is only necessary to procure some of the Compound Spirits of Ammonia, and place about 2 tablespoonfuls in a basin of water. Washing the face, hands, arms, and under the arms, with this, leaves the skin as clean, fresh and sweet as one could wish. The wash being perfectly harmless, and very cheap, we recommend it, on the authority of one of our most experienced physicians, to our readers.

**To Color the Hair Black.**—Take a piece of unslaked Lime, a good article, reduce it to powder by pouring water on it, then mix with a portion of Litharge, one-fourth to

one-third as much Litharge as there is of Lime. Reduce to a fine powder, and pass through a fine sieve. You then have what has been sold at a high price under the name of "Unique Powder," which has cost you perhaps one cent, as Litharge is cheap, and may be had at any drug or paint store. Put a sufficient quantity of this powder into a cup or saucer, and add to it sufficient hot Water to form a sort of paste about the consistency of thick cream; stir and mix well; then, just before going to bed at night, apply of this paste to the hair, whiskers, or wherever you wish to color, mixing it in among the hair well, which you can do best by dividing the hair into thin layers, mixing it well up to the roots, and all over the hair. When you have thus completely covered the hair, then lay all over it brown or common wrapping paper, made damp or wet, and bind over this a handkerchief or cloth, and over all a nightcap, and go to bed. In the morning rub and comb out the Powder, which is now dry, wash well with Soap and warm Water, then dry, and apply a little Hair-oil, if you like.

This is a little troublesome, but it is one of the best, most certain and durable Hair-dyes known, and perfectly harmless. If the hair is not black enough, or any parts not sufficiently colored, apply again the next night. It will color gray hair perfectly black: or if you put it on but lightly, or put in a less proportion of the Litharge, it will color brown, and will change red, sandy, or light hair as well. It remains black until the hair grows out again, and of course is to be applied again when that occurs, if you wish to maintain the color. The powder can be kept in a bottle or tight vessel any length of time ready for use.

**Brilliant Whitewash.**—Many have heard of the brilliant stucco Whitewash on the east end of the President's House, at Washington. The following is a recipe for making it, with some additional improvements learned by experiment:

Take ½ bushel of nice unslaked Lime, slake it with boiling Water, cover it during the process to keep in the steam. Strain the liquid through a fine sieve or strainer, and add to it a peck of clean Salt previously well dissolved in warm Water; 3 pounds of ground Rice, boiling to a thin paste, and stirred in boiling hot; ½ pound of powdered Spanish Whiting, and 1 pound of clean Glue, which has been previously dissolved by first soaking it well and then hanging it over a slow fire, in a small kettle, within a large one filled with Water. Add 5 gallons of hot Water to the whole mixture, stir it well, and let it stand a few days covered from the dirt. It should be put on right hot; for this purpose, it can be kept in a kettle on a portable furnace. It is said that about one pint of this mixture will cover a square yard, if properly applied with a brush, as in painting. It answers as well as Oil Paint for wood, brick, or stone, and is cheaper. It retains its brilliancy for many years. There is nothing of the kind that will compare with it, either for inside or outside walls. Coloring matter may be put in, and made of any shade you like.

Spanish Brown stirred in will make red or pink, more or less, according to the quantity. A delicate tinge of this is very pretty for inside walls. Finely pulverized common Clay well mixed with Spanish Brown before it is stirred into the mixture, makes a lilac color Lampblack in moderate quantities makes a slate color very suitable for the outside of buildings. Lampblack and Spanish Brown mixed together produce a reddish stone color. Yellow Ocher stirred in makes yellow wash, but Chrome goes farther, and makes a color generally esteemed prettier. In all these cases, the darkness of the shade will, of course, be determined by the quantity of coloring used. It is difficult to make a rule, because tastes are very different; it would be best to try experiments on a shingle, and let it dry. We have been told that green must not be mixed with Lime. The Lime destroys the color, and the color has an effect on the whitewash, which makes it crack and peel. If a larger quantity than five gallons is wanted, the same proportion should be observed.

**Wash for Outbuildings.**—Wishing to know how to make a Whitewash that is both durable and good, I thought the inquiry would perhaps be answered by you or you

numerous correspondents. I have a fence inclosing about an acre of ground, a poultry-house and a small barn to whitewash, and I would like to have them appear well, and also the whitewash to last some time.—D. GETHART, Williamsport, Penn., 1859.

Take a barrel and slake in it carefully, with boiling Water, ½ bushel of fresh Lime. Then fill the barrel two-thirds full of Water, and add 1 bushel of Hydraulic Lime or Water Cement. Dissolve in Water, and add 3 pounds of Sulphate of Zinc (White Vitriol), stirring the whole to incorporate it thoroughly. The wash should be of the consistency of thin paint, and may be laid on with a whitewash or other brush. The color is pale stone color, nearly white. If you wish it to be straw color, add Yellow Ocher, 2 pounds in powder; if drab, add 4 pounds raw Umber.

Another good wash is made as follows: Slake Lime with hot Water, in a tub, to keep in the steam. When dissolved, and in a half fluid state, pass it through a fine sieve. Take 6 quarts of this Lime and 1 quart of clean Rock Salt for each gallon of Water—the Salt to be dissolved by boiling, and the impurities to be skimmed off. To 5 gallons of this mixture (Salt and Lime), add 1 pound of Alum, ½ pound of Copperas, ¾ pound of Potash (the last to be added gradually), 4 quarts of fine Sand, or hard Wood Ashes. Add coloring matter to suit the fancy.

A correspondent of the *Country Gentleman* gives the following: 1 bushel unslaked Lime, ½ gallon Salt, 3 pounds powdered Alum, 3 pounds Saleratus. Mix, and put it in a tight barrel with head out. If the Lime is quite fresh, cold Water; if not, then use hot Water. Keep stirring while slaking, adding Water as required, so as not to become dry at any time. If it heats dry, it becomes lumpy, and must not be overflowed with water so as to prevent the slaking going on. Stir up well from the bottom. When finished, it may be as thick as mush. When to be applied by a brush, make the mixture the consistency of whitewash—about the thickness of cream. Apply the first coat very thoroughly, filling every crack or interstice between the bricks or in the boards. For wooden fences, a second coat of the same material is all that is required. Those who desire to have some other color than white, can add coloring matter to taste.—*Rural New Yorker.*

**For Brick Houses.**—For the second coat, add to the first-named materials twelve pounds melted Tallow, and mix as before. This coat is impervious to water—is brighter, looking clean longer than paint, and preserves the cement between the bricks better than paint.

**Tomato Catsup.**—The *Columbus* (Ga.) *Sun* gives the following as the best recipe for making Tomato Catsup: To ½ bushel of skinned Tomatoes add 1 quart of good Vinegar, 1 pound of Salt, ¼ pound of Black Pepper, 1 ounce of African Cayenne, ¼ pound of Allspice, 1 ounce of Cloves, 3 boxes of Mustard, 20 cloves of Garlic, 6 Onions, 2 pounds of Brown Sugar, and 1 handful of Peach Leaves. Boil this mass for three hours, constantly stirring it to keep it from burning. When cool, strain it through a fine sieve or a coarse cloth, and bottle it for future use. It will improve by age, and create and give zest to appetite almost under the ribs of death.

**Instructions for Saving Garden Seeds.**—When the Seeds are ripe, gather them without unnecessary delay; otherwise, the pods will split open and their contents be scattered upon the ground. Do not gather indiscriminately, but take only the finest looking heads. By this selection of the best plants and the best seed, good varieties may be even improved, and they certainly will not deteriorate. In this way many of our choice vegetables have been obtained. The practical stockbreeder's motto is that "like produces like," and he breeds from those animals only which possess the points he wishes perpetuated. Thus, if you select the earliest Peas from the earliest vines, for a number of seasons, you can obtain a variety ripening several days earlier than that with which you commenced.

Place the Seed-vessels, as soon as gathered, upon a cloth in the shade, so that they may become perfectly dry, at which time thresh out the Seed, by means of a small stick. Winnow out the chaff and small or defective Seed, and put the remainder in drawers or small

paper bags. Every kind should be labeled with its name and the year when raised- in this manner, "*Early Salmon Radish*, 1856." This will prevent all possibility of the inexperienced cultivator mistaking Beet for Cabbage-seed, or sowing that which by the lapse of time has lost its powers of germination. Keep these drawers or bags in a cool, dry apartment, where no injury may be apprehended from moisture or the attacks of mice With care Seeds may be preserved for several years, according to the annexed table:

The vitality of Seeds, under favorable circumstances, may be depended upon for the following periods: Parsneps, Rhubarb, and other thin, scaly seeds, for one year. Balm Basil, Beans, Cadroon, Carrot, Cress, Indian Cress, Lavender, Leek, Okra, Onion, Peas Pepper, Rampion, Sage, Salsify, Savory, Scorzonera, Thyme, Tomato, Wormwood, and small herbs generally, for two years. Artichoke, Asparagus, Corn Salad, Egg Plant, Endive, Indian Corn, Lettuce, Marigold, Marjoram, Mustard, Parsley, Rosemary, Rue, Skerritt, Spinach, and Tansey, for three years. Borage, Borecole, Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Radish, Sea Kale, Tarragon, and Turnip, for four years. Beet, Burnet, Celery, Cherval, Cucumber, Dill, Fennel, Hyssop, Melon, Pumpkin, Sorrel and Squash, from five to eight or ten years.

*Age* adds value to many Seeds, and some are in the habit of keeping Melon-seeds until they are six or seven years old, under the idea that they germinate more readily, and produce more prolific plants, in consequence.

**Distances Traveled in Plowing.**—The following table shows the distance traveled by a plow-team in plowing an acre of land, and the quantity of land worked in a day, at the rate of 16 or 18 miles per day of nine hours:

| Breadth of Furrow Slice. | Space traveled in Plowing an Acre. | Extent Plowed per Day at the rate of | |
|---|---|---|---|
| | | 18 Miles. | 16 Miles. |
| Inches. | Miles. | Acres. | Acres. |
| 7 | 14 1-8th | 1 1-4th | 1 1-8th |
| 8 | 12 1-4th | 1 1-2 | 1 1-4th |
| 9 | 11 | 1 3-4ths | 1 1-2 |
| 10 | 9 9-10ths | 1 4-5ths | 1 3-5ths |
| 11 | 9 | 2 | 1 3-4ths |
| 12 | 8 1-4th | 2 1-5th | 1 9-10ths |
| 13 | 7 1-2 | 2 1-3d | 2 1-10th |
| 14 | 7 | 2 1-2 | 2 1-4th |
| 15 | 6 1-2 | 2 3-4ths | 2 2-5ths |
| 16 | 6 1-6th | 2 9-10ths | 2 3-5ths. |

**How to Build an Ice-house.**—To build an Ice-house in *sandy or gravelly soils*, is one of the easiest things in the world. The drainage there is perfect; the dry and porous soil is of itself a sufficiently good *non-conductor*. All that it is necessary to do, is to dig a pit, twelve feet square, and as many deep, line it with logs or joists faced with boards, cover it with a simple roof on a level with the ground, and fill it with ice. Such Ice-houses, built with trifling cost, and entirely answering the purpose of affording ample supply for a large family, are common in various parts of the country.

But it often happens that one's residence is upon a strong loamy or clayey soil, based upon clay or slate, or, at least, rocky in its substratum. Such a soil is retentive of moisture, and even though it be well drained, the common Ice-house just described will not preserve ice half through the summer in a locality of that kind. The clayey or rocky soil is always damp—it is always an excellent conductor, and the ice melts in it in spite of all the usual precautions. Something more than the common Ice-house is, therefore, needed in all such soils. "How shall it be built?"

1*st. An Ice-house above ground.*—An Ice-house above ground should be built upon the plan of having a double partition, with the hollow space between filled with some non-conducting substance.

In the first place, the frame of the sides should be formed of two ranges of upright

*joists*, 6 by 4 inches; the lower ends of the joists should be put into the ground *without any sill*, which is apt to let air pass through. These two ranges of joists should be about two feet and one-half apart at the bottom, and two feet deep at the top. At the top these joists should be mortised into the cross-beams which are to support the upper floor. The joists in the two ranges should be placed each opposite another. They should then be lined or faced on one side with rough boarding, which need not be very tight. This boarding should be nailed to those edges of the joists nearest each other, so that one range of joists shall be outside the building, and the other inside the ice-room or vault.

The space between these boardings or partitions should be filled with wet tan or saw-dust, whichever is cheapest or most easily obtained. The reason for using *wet* material for filling this space is, that during winter it freezes, and, until it is again thawed, little or no ice will melt at the sides of the vault.

The bottom of the ice-vault should be filled about a foot deep with small blocks of wood; these are leveled and covered with wood shavings, over which a strong plank floor should be laid to receive the ice.

Upon the beams above the vault a pretty tight floor should also be laid, and this floor should be covered several inches deep with dry tan or saw-dust. The roof of the Ice-house should have considerable pitch, and the space between the upper floor and the roof should be ventilated by a lattice-window at each gable-end, or something equivalent, to pass out the warm air which will accumulate beneath the roof. A door must be provided in the side of the vault to fill and discharge it; but it should always be closed up higher than the ice, and when not in use, should be kept closed together.

2*d*. *An Ice-house below ground.*—This is only thoroughly made by building up the sides of the pit with a good brick or stone wall, lain in mortar. Inside of this wall set joists and build a light wooden partition against which to place the ice. A good floor should be laid over the vault as just described, and this should also be covered with dry tan or saw-dust. In this floor the door must be cut to give access to the ice.

As regards the bottom of the vault, the floor, the lattice-windows in the gables for ventilation, etc., the same remarks will apply that have just been given for the Ice-house above ground, with the addition that in one of the *gables*, in this case, must be the door for filling the house with ice.

If the ground where Ice-houses of either kind are built, is not porous enough to let the melted ice drain away, then there should be a waste pipe to carry it off, which should be slightly bent, so as always to retain enough water in it to prevent the passage of air upward into the Ice-house.

For the use of an ordinary family during a season, a cube of twelve or fourteen feet—that is, a house the vault of which will measure about twelve to fourteen feet "in the clear," every way, will be quite large enough, if properly constructed. An Ice-house, the vault of which is a cube of twelve feet, will hold about fifty tuns of ice.

**How to Prevent Wet Feet.**—A writer in the *Mechanics' Magazine*, who says he has had three pair of boots last him six years, and thinks he will not require any more for six years to come, tells how he treats them. "I put 1 pound, each, of Tallow and Resin in a pot on the fire; when melted and mixed, apply it hot to the boot with a painter's brush until neither the sole nor upper will soak any more. If it is desirous that the boots should immediately take a polish, dissolve 1 ounce of Wax in a tea-spoonful of Turpentine and Lampblack. A day or two after the boots have been treated with the Resin and Tallow, rub over them this Wax and Turpentine, but not before the fire: thus the exterior will have a coat of Wax alone, and shine like a mirror Tallow and Grease become rancid, and rot the stitching or leather; but the Resin gives it an anti-septic quality, which preserves the whole."

# EXPLANATION

OF

## MEDICAL, PHARMACEUTICAL, BOTANICAL AND CHEMICAL TERMS WHICH OCCUR IN THIS BOOK.

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REMARK.—The pronunciation is given in *parentheses*, thus ( ). Pronounce as follows ā like a in mate, ă like a in bar; ē like e in fever; ī like i in fine, ĭ like i in marine, ĭ like i in gird; ō like o in wrote, ŏ like o in love, ŏ like o in move; ū like u in mule.

The accent, thus ′, means that the syllable to which it is affixed, is to be pronounced with particular stress or force of voice. In several cases, the words have been respelled according to the pronunciation.

*Abdomen* (ab-dō′men, or ab′do-men). The lower belly, or that part of the body which lies between the thorax and the bottom of the pelvis.

*Ablution* (ab-lū′tion). Cleansing by water; washing of the body externally.

*Abortion* (a-bor′tion). A miscarriage, or producing a child before the natural time of birth.

*Abscess* (ab′scess). A cavity containing pus, or a collection of matter; as a common boil or felon, or any swelling that has come to a head.

*Absorbent* (ab-sor′bent). In anatomy, a vessel which imbibes; in medicine, any substance which absorbs or takes up the fluids of the stomach and bowels.

*Accoucher* (ac-coo-share′). A man who assists women in childbirth.

*Acetabulum* (a-ce-tab′u-lum). The socket that receives the head of the os femoris, or thigh bone.

*Acid* (ac′id). Sour; sharp or biting to the taste, as acetous acid or vinegar; citric acid, obtained from lemon, etc.

*Acidity.* The quality of being sour; tartness, or having a sharpness to the taste.

*Acrid* (ak′rid). Sharp, pungent, bitter, biting to the taste.

*Actual Cautery* (kau′ter-y). A surgical operation, performed by burning or searing with a hot iron.

*Acuminate* (a-kū′min-ate). Taper pointed; the point usually inclined to one side.

*Acupuncture* (ak-u-punk′ture). A surgical operation, performed by pricking the part affected with a needle.

*Acute* (a-cūte′). Sharp, ending in a sharp point; acute diseases are of short duration, attended with violent symptoms; it is opposite to chronic.

*Adhesive* (ad-hē′sive). Sticky, tenacious, apt or tending to adhere.

*Adhesive Plaster.* Sticking plaster.

*Adhesive Inflammation.* That kind of inflammation which causes adhesion.

*Adjuvant* (ad-jū′vant). An assistant; a substance added to a prescription to aid the operation of the principal ingredient or basis.

*Adult age* (a-dult′age). A person grown to full size or strength; manhood or womanhood

*Affection.* Disorder, disease, malady.

*Affusion* (af-fū′sion). The act of pouring upon or sprinkling with a liquid substance.

*Albumen* (al-bū′men). The white of an egg. A principle of both animal and vegetable matter.

*Alimentary* (a-li-ment′a-ry). Having nourishing qualities, as food.

*Alimentary Canal.* The intestine by which aliments are conveyed through the body, and the useless parts evacuated.

*Alkali* (al′ka-lī or le). A substance which is capable of uniting with acids and destroying their acidity. Potash, soda, etc., are alkalies.

***Alterative*** (al′ter-a-tive). A medicine which gradually changes the condition of the system, restoring healthy functions without producing sensible increase of the evacuations.

***Alternate*** (al-tern′ate). When branches and leaves issue singly from opposite sides of the stem, in regular order, first on one side of the stem and then on the other, they are said to be alternate.

***Alveole*** (al′ve-ole). The socket in the jaw in which a tooth is fixed.

***Alvine*** (al′vine). Pertaining to the intestines.

***Amaurosis*** (am-aur-ō′sis). A loss or decay of sight from a palsy of the optic nerve, without any visible defect in the eye, except an immovable pupil.

***Amenorrhea*** (am-en-or-rhe′a). An obstruction of the menstrual discharges.

***Ament*** (am′ent). A kind of inflorescence, that is, a scaly sort of spike, as of the birch, the elder, the willow, the poplar, etc.

***Amplexicaulis*** (am-plex-i-kaul′is). The basis, clasping the stem.

***Amputation*** (am-pu-ta′tion). The act or operation of cutting off a limb or other part of the body.

***Anasarca*** (a-na-sär′ca). A dropsy of the whole body; a general dropsy.

***Anastomose*** (a-nas′to-mōse). To communicate with each other; applied to the vessels of the body, as the arteries and veins.

***Anchylosis*** (ank-y-lō′sis). Applied to immovable or fixed joints.

***Aneurism*** (an′eu-rism). A soft pulsating tumor, arising from the rupture of the coats of an artery.

***Angina Pectoris*** (an-jī′na pec′tōris). A peculiar, painful, periodic, nervous affection of the chest.

***Angina Tonsillaris*** (an-jī′na ton-sil-la′ris). Inflammation of the tonsils.

***Angina Trachealis*** (an-jī′na trā-ke-al′is). Inflammation of the windpipe, or croup.

***Annual*** (an′nu-al). Yearly. An annual plant that grows from the seed to perfection and dies in one season.

***Annulated*** (an′nu-lā-ted). Surrounded by rings.

***Anodyne*** (an′o-dyne). Any medicine which allays pain and procures sleep.

***Antacid*** (ant′a-cid). A substance to counteract acids, as an alkali.

***Anthelmintic*** (an-thel-min′tik). A worm-destroyer; worm medicine.

***Anti-bilious*** (an′ti-bi′lious). Counteractive of bilious complaints.

***Antidote*** (an′ti-dōte). A protective against or remedy for poison, or any thing noxious taken into the stomach, or any disease.

***Anti-dysenteric*** (an-ti-dys-en-ter′ik). A remedy for dysentery.

***Anti-emetic*** (an-ti-e-met′ik). A remedy to check or allay vomiting.

***Anti-lithics*** (an-ti-lith′ics). A medicine to prevent or remove urinary calculi or gravel.

***Anti-morbific*** (an-ti-mor-bif′ik). Any thing to prevent or remove disease.

***Anti-scorbutic*** (an-ti-scor-bū′tik). A remedy for the scurvy.

***Anti-septic*** (an-ti-sep′tik). That which kills septic germs.

***Anti-spasmodic*** (an-ti-spas-mo′dik). That which relieves spasms, cramps and convulsions.

***Anti-syphilitic*** (an-ti-syph-i-lit′ik). Remedy against syphilis.

***Aperient*** (a-pē′ri-ent). A gentle purgative or laxative.

***Apex*** (ā′pex). The top or summit; the termination of any part of a plant. The top of the lung.

***Aroma*** (a-rō′ma). The fragrance of plants and other substances, experienced by an agreeable smell.

***Aromatic*** (a-ro-mat′ik). A fragrant, spicy plant, drug, or medicine.

***Arthrodia*** (ar-thrō′di-a). A joint movable in every direction.

***Articulated*** (ar-tic′u-la-ted). Having joints.

***Ascarides*** (as-car′i-dēs). Pin-worms, or thread-worms, always found in the lower portion of the bowels, or anus.

***Ascites*** (as-cī′tēs). Dropsy of the abdomen.

***Assimilation*** (as-sim-i-lā′tion). The conversion of food into the fluid or solid substances of the body.

***Asthmatic*** (asth-mat′ik). A person troubled with asthma, or a difficulty of breathing.

***Astringent*** (as-trinj′ent). Binding; contracting; opposed to laxative.

***Atony*** (at′o-ny). Debility; want of tone; defect of muscular power.

***Atrophy*** (at′ro-phy). A wasting of flesh and loss of strength, without any sensible cause.

***Axillary*** (ax′il-la-ry). Pertaining to the armpit.

***Axillary Glands.*** Situated in the armpit, secrete a fluid of peculiar odor, which stains linen and destroys the color of clothing; also the lymphatic glands in this region.

***Balsamic*** (bal-sam′ik). Medicines employed for healing purposes.

***Belching*** (belch′ing). Ejecting wind from the stomach.

***Biennial*** (bī-en′ni-al). In botany, continuing for two years, and then perishing, as plants whose roots and leaves are formed the first year, and which produce fruit the second.

*Bifurcation* (bī-fur-cā'tion). Division into two branches.
*Biternate* (bī-tern'ate). Doubly ternate, or having six leaves on the leaf stalk.
*Bract* (brakt). A small leaf growing near the flower, and differing in form and color from the other leaves.
*Bronchial* (bronch'i-al). Belonging to the ramifications of the windpipe in the lungs.
*Bulbous* (bul'bous). Round or bulb-shaped.
*Cachexia* (ka-khex'y). A bad condition of the body; where the fluids and solids are vitiated; without fever or nervous disease.
*Cadaverous* (ka-dav'er-ous). Having the appearance or color of a dead human body wan; ghastly; pale; like unto death.
*Calculi* (kal'cu-lī). The gravel and stone formed in any part of the body, as the bladder and kidneys.
*Callous* (kal'lous). Hard; hardened; indurated; as an ulcer, or some part of the body.
*Callus* (kal'lus). Bony matter which forms about fractured bones, serving to unite them.
*Caloric* (ka-lor'ic). The element of heat.
*Calyx* (kā-lyx). The outer covering of a flower.
*Campanulate* (kam-pan'u-late). Bell-shaped.
*Capillary* (kap'il-la-ry). Resembling a hair. A minute tube connecting the arteries and the veins.
*Capsule* (kap'sule). The seed vessel of a plant; the membrane surrounding a joint.
*Carbon* (kär'bon). Charcoal; a chemical element.
*Carbonic Acid Gas.* The fixed air in the bottom of wells; a combination of two parts of oxygen with one part of carbon.
*Carminative* (kär'min-a-tive). A medicine which allays pain by expelling wind from the stomach and bowels.
*Cartilage* (kär'ti-lage). Gristle; a substance similar to, but softer than bone.
*Catamenia* (kat'a-mē-nia). The monthly evacuations of females; the menstrual discharges.
*Cathartic* (ka-thär'tic). Purgative; a medicine that cleanses the bowels.
*Catheter* (kath'e-ter). A tubular instrument introduced into the bladder through the urethra for drawing off the urine.
*Caudex* (kau'dex). The main stem of a tree or plant; the stock which proceeds from a seed, one part ascending and forming the body above ground, the other descending and putting forth roots.
*Caustic* (kaus'tic). Burning; a substance which burns or corrodes living tissues when applied to them, as *lunar caustic*, or nitrate of silver.
*Cautery* (kau'ter-y). A burning, searing or corroding any part of the animal body.
*Cellular* (cel'lu-lar). Consisting of or containing cells.
*Cerebellum* (cer-e-bel'lum). The hinder and lower part of the brain.
*Cerebrum* (cer'e-brum). The front and larger part of the brain.
*Cespitose* (ces'pi-tose). Growing in tufts.
*Cespitous* (ces'pi-tous). Pertaining to turf; turfy.
*Chancre* (shank'er). The primary sore of syphilis; first sign of the disease.
*Choleric* (kol'er-ic). Easily irritated; irritable.
*Chordee* (kord-ee'). A painful erection of the penis.
*Chronic* (kron'ic). Continuing for a long time; inveterate; the opposite of acute.
*Cicatrix* (si-kā'trix). A scar remaining after a wound.
*Coagulation* (ko-aj'u-la-tion). Changing from a liquid to solid or semi-solid state.
*Coalesce* (kō-a-less'). To grow together; to unite.
*Colliquative* (kol-lik'wa-tiv). Melting, dissolving; applied to excessive evacuations of the body, which reduce the strength.
*Coma, or Comatose* (kō'ma, or kō'ma-tose). Lethargy; disposed to sleep.
*Combustion* (kom-bus'tion). Burning with a flame.
*Concave* (kon'kave). Hollow. A concave leaf is one whose edge stands above the disk.
*Concrete* (kon'krete). A compound; a united mass.
*Confluent* (kon'flu-ent). Flowing together; meeting in their course, as two streams uniting.
*Congenital* (kon-jen'i-tal). Begotten or born with; before birth.
*Conglobate* (kon-glō'bāte). Formed into a ball.
*Connate* (kon'nāte). United in origin; united into one body.
*Constipation* (kon'sti-pā-tion). Costiveness; obstruction or hardness of the contents of the intestines.
*Constriction* (kon-strict'ion). A contraction, or drawing together.
*Contagious* (kon-tā'jious). Catching, or that may be communicated by contact.
*Contusion* (kon-tū'sion). A bruise.

*Convalescent* (kon-va-les'cent). Recovering health and strength after sickness or debility.
*Convoluted* (kon'vo-lū-ted). Rolled together, or one part on another.
*Cordate* (kor'dāt). Heart-shaped, as a leaf.
*Cordial* (kord'yal). A medicine to increase the strength or raise the spirits.
*Coricaeous* (kō-re-ā'shus). Tough and elastic, like cork or leather; leathery.
*Corolla* (ko-rol'la). The inner covering of a flower.
*Corpse* (korps). The dead body of a human being.
*Corrosive* (kor-rō'sive). That which has the quality of eating away or wearing gradually.
*Corrosive sublimate* (kor-rō-sive sub'li-māte). Bichloride of mercury; an acrid poison of great virulence.
*Cortex* (kor'tex). The bark of a tree or plant.
*Corymb* (kor'imb). A cluster of flowers at the top of a plant, forming an even, flat surface, as the flowers of the elder bush.
*Cranium* (krā'ni-um). The skull.
*Crepitant* (krep'i-tant). A sharp, abrupt sound.
*Cuneiform* (ku-nē'i-form). Wedge-shaped.
*Cutaneous* (ku-tā'ne-ous). Belonging to the skin, or cutaneous diseases.
*Cuticle* (ku'ti-cle). The scarf or outer skin.
*Decarbonize* (de-kar'bon-ize). To deprive of carbon or coal.
*Decoction* (de-kok'shun). Any medicine made by boiling a substance in water to extract its virtue.
*Delirium* (de-lir'i-um). Disorder of the intellect; wildness or wandering of the mind.
*Demulcent* (de-mul'cent). A mucilaginous medicine which soothes the tender and raw surfaces of diseased parts.
*Depletion* (de-plē'tion). Blood-letting, or any process that rapidly reduces the strength.
*Depuration* (dep-u-rā'tion). Cleansing from impure matter.
*Derm.* The natural covering of an animal, or skin.
*Detergent* (de-ter'jent). A medicine that cleanses the vessels or skin from offending matter.
*Diagnosis* (dī-ag-nō'sis). The distinction of one disease from another by its symptoms.
*Diaphoresis* (dī-aph-ō-rē'sis). Increased perspiration, or sweat.
*Diaphoretic* (dī-aph-o-ret'ic). Sweating; any medicine which promotes sweating.
*Diaphragm* (di'a-fram). The muscular division between the chest and belly.
*Diarrhœa* (dī-ar-rē'a). A morbidly frequent evacuation of the intestines.
*Diathesis* (dī-ath'e-sis). The disposition of body, good or bad.
*Dichotomous* (dī-kot'o-mus). Regularly divided in pairs, from top to bottom.
*Digest* (dī-jest'). To dissolve in the stomach and intestines; in medicine, to make a tincture by steeping herbs in alcohol.
*Digitate* (dij'i-tāte). Divided like fingers.
*Diluent* (dī-lu'ent). That which thins, weakens or reduces the strength of liquids.
*Diluting* (dī-lu'ting). Weakening.
*Diuretic* (dī-u-ret'ic). A medicine which promotes the flow of urine.
*Dolor* (dō-lor). Pain.
*Drastic.* Powerful, efficacious.
*Duodenum* (du-o-dē'num). The first of the small intestines.
*Efflorescence* (ef-flō-res'cence). Eruption or redness on the skin, as in measles, scarlet fever, etc.
*Effluvia* (ef-flu'via). Exhalations from substances, as from flowers or decaying matter.
*Electuary* (e-lec'tu-ary.). Medicine compounded with syrup or honey.
*Eliminating* (e-lim'in-ā-ting). Discharging or throwing off.
*Emaciation* (e-mā'ci-ā-tion). Leanness, wasting of the flesh.
*Emesis* (em'e-sis). A vomiting.
*Emetic* (e-met'ic). A medicine given to cause vomiting.
*Emmenagogue* (em-men'a-gōgue). A medicine which promotes the menstrual discharges.
*Emollient* (ē-mol'li-ent). A softening application which allays irritation.
*Emulsion* (ē-mul'sion). A soft, milk-like remedy, as oil and water mixed with mucilage or sugar.
*Enema* (en-e'ma). An injection.
*Enteritis* (en-ter-ī'tis). Inflammation of the bowels.

*Entozoa* (en-to-zo'a). Intestinal worms; living in some part of an animal body.
*Epidemic* (ep-i-dem'ic). A prevalent disease.
*Epidermis* (ep-i-derm'is). The outer skin.
*Epigastric* (ep-i-gas'tric). Pertaining to the upper and anterior portion of the abdomen
*Epileptic* (ep-i-lep'tic). Subject to epilepsy or the falling sickness.
*Epispastic* (ep-i-spas'tic). An application for blistering.
*Erosion* (e-rō'sion). The act or operation of eating away.
*Errhine* (er-rīne). A medicine for snuffing up the nose to promote the discharge of mucus
*Eructation* (e-ruc'tā-tion). Belching; expelling wind from the stomach through the throat.
*Eruption* (e-rup'tion). A breaking out of various skin lesions.
*Escharotic* (es-ka-rot'ic). Caustic; an application which sears or destroys the flesh.
*Evacuant* (e-vac'u-ant). A medicine to promote the secretions and excretions.
*Evacuate* (e-vac'u-ate). To empty; to discharge from the bowels.
*Exacerbation* (ex-ac-er-bā'tion). Increase of violence in a disease.
*Exanthema* (ex-an-thē'ma). An eruption; an efflorescence on the skin, or eruption accompanied with fever.
*Excitant* (ex-cī'tant). A stimulant.
*Excoriate* (ex-co'ri-ate). To gall; to abrade or scrape off the skin in any way.
*Excrescence* (ex-cres'cence). A preternatural or abnormal protuberance; as, a wart, or mole.
*Excretion* (ex-crē'tion). Useless matter thrown off from the system, as the perspiration, urine, etc.
*Exotic* (ex-ot'ic). Introduced from a foreign country,
*Expectorant* (ex-pec'to-rant). A medicine which promotes the discharge of phlegm or matter from the lungs.
*Expectoration* (ex-pec-to-rā'tion). The act of discharging phlegm by coughing and spitting
*Expiration* (ex-pi-rā'tion). The act of breathing out the air from the lungs.
*Extravasation* (ex-trav-a-sā'tion). Effusion; the act of emptying or forcing a fluid out of its proper vessels.
*Exudation* (ex-u-dā'tion). The discharge of moisture on the surface of bodies, as from the pleura.
*Fæces* (fē'seez). Excrement; the discharges from the bowels.
*Fasciæ* (fash'e-ä). Membranes covering the muscles.
*Fauces* (fau'cēs). The back part of the mouth at the entrance of the throat.
*Febrifuge* (feb'ri-fuge). A medicine that reduces temperature.
*Febrile* (fē'brile). Having the symptoms of fever; feverish.
*Fetid* (fe'tid). Having a rank, disagreeable odor.
*Fetus* (fe'tus). The child in the womb.
*Fiber* (fi'ber). A thread; a fine, slender substance which constitutes the flesh and muscles of animals.
*Fibril* (fi'bril). The branch of a fiber; a very slender thread.
*Filament* (fil'a-ment). A thread or fiber.
*Filter* (fil'ter). A strainer.
*Filtration* (fil-trā'tion). Straining; the separation of a liquid from the undissolved particles floating in it.
*Fistula* (fis'tu-la). A deep, narrow, crooked ulcer.
*Flaccid* (flak'sid). Soft and weak, lax, limber.
*Flatulency* (flat'u-len-cy). Wind in the stomach and intestines, causing uneasiness and often belchings.
*Flexible* (flex'i-ble). Easily bent; yielding to pressure.
*Flush.* A sudden flow of blood to the cheeks or face.
*Flux.* An unusual flowing or discharge from the bowels.
*Fomentation* (fō-men-ta'tion). Bathing by means of flannels dipped in hot water or medicated liquids.
*Forceps* (for'ceps). An instrument like a pair of pinchers, for extracting teeth, clipping membranes, etc.
*Formula* (for'mu-la). A prescription.
*Fungus* (fun'gus). A spongy excrescence, as proud flesh.
*Gangrene* (gan'grēne). Local death of an animal organism, *i. e.*, death of a part.
*Gargle* (gär'gle). A wash for the mouth and throat.
*Gastric* (gas'tric). Belonging to the stomach.
*Gastritis* (gas-trī'tis). Inflammation of the stomach.
*Gland.* A soft, fleshy organ for the secretion of fluids, or to modify fluids that pass through them
*Glutens* (glū'tens). The large thick muscle on which we sit.

*Hectic* (hec'tic). Habitual; an exasperating and remitting fever, with chills, heat and sweat. Characteristic of consumption.

*Hemoptysis* (he-mop'ty-sis). A spitting of blood.

*Hemorrhage* (hem'o-rāje). Bleeding; a flow of blood, as from the lungs, nose, etc.

*Hemorrhoids* (hem'o-roids). The piles.

*Hepatic* (he-pat'ic). Pertaining to the liver.

*Herbaceous* (her-bā'shus). Pertaining to herbs.

*Hereditary* (he-red'i-ta-ry). Descended from a parent; inherited.

*Herpes* (her'pēēz). An eruption of the skin.

*Hernia* (her'nia). A rupture and protrusion of some part of the abdomen.

*Hydragogue* (hy'dra-gōg). A purgative that causes a watery discharge from the bowels.

*Hydrogen* (hy'dro-jen). One of the chemical elements; a gas, and the lightest substance known; one of the constituents of water.

*Hydrophobia* (hy'dro-phō-bia). A dread of water; a disease of dogs and other animals sometimes communicated to man.

*Hygiene* (hy'ji-ēne). The art of restoring or preserving health without recourse to medicine.

*Hypochondriac* (hy-po-kon'dri-ak). A person afflicted with debility, lowness of spirits, or melancholy, or, in other words, with "the blues."

*Hysterical* (hys-ter'i-cal). Troubled with fits or nervous affections.

*Idiopathy* (id-i-op'a-thy). A morbid condition not preceded by any other disease.

*Idiosyncrasy* (id-i-o-syn'cra-sy). Peculiarity of constitution or temperament; peculiarly susceptible of certain extraneous influences, and hence liable to certain diseases which others would escape.

*Ileum* (il'e-um). The lower part of the small intestines.

*Incubus* (in'cu-bus). The nightmare; a burden on the mind.

*Indigenous* (in-dij'e-nus). Native.

*Indurated* (in'du-rā-ted). Hardened.

*Infection* (in-fec'tion). Contagion; communication of disease from one to another.

*Inflammation* (in-flam-mā'tion). Redness and swelling of any part of the body, with heat, pain and symptoms of fever.

*Inflated* (in-flā'ted). Filled or swelled with air.

*Infusion* (in-fū'sion). Medicine prepared by steeping either in cold or hot water.

*Ingestion* (in-jes'tion). Throwing into the stomach.

*Injection* (in-jec'tion). A liquid projected into the bowels by means of a syringe; an enema.

*Inoculation* (in-oc-u-lā'tion). Communicating a disease to a person in health by inserting contagious matter in his skin or flesh.

*Inspiration* (in-spi-rā'tion). Drawing or inhaling air into the lungs.

*Inspissation* (in-spis-sā'tion). Rendering a fluid thicker by evaporation.

*Integument* (in-teg'u-ment). The skin, or a membrane that invests an organism.

*Intermittent* (in-ter-mit'tent). Ceasing at intervals.

*Lanceolate* (lan'ce-o-late). Oblong and gradually tapering to the outer extremity.

*Larynx* (lar'inx). The upper part of the windpipe.

*Laxative* (lax'a-tive). A gentle purge; a medicine that loosens the bowels.

*Lethargy* (leth'ar-jy). Unusual or excessive drowsiness.

*Leucorrhœa* (lu'kor-rē'a). The whites; a vaginal discharge.

*Lesion* (lē'sion). A rupture or tearing of the flesh; a wound; a change in the tissues from normal.

*Liniment* (lin'i-ment). A species of soft ointment.

*Lithontriptic* (lith-on-trip'tic). A solvent of the stone or gravel in the bladder.

*Lithotomy* (li-thot'o-my). The operation of cutting for stone in the bladder.

*Lochial* (lō'ki-al). Pertaining to discharges from the womb after childbirth.

*Lumbago* (lum-bā'go). Muscular rheumatism.

*Lumbar* (lum'bar). Pertaining to the loins.

*Maceration* (mac-er-ā'tion). Dissolving or softening with water.

*Malaria* (ma-lā'ri-a). A disease characterized by chills and fever.

*Manna* (man'na). The inspissated juice or gum of a species of ash, used in medicine. It is gently purgative.

*Membrane* (mem'brane). A thin, white, flexible skin formed of fibers, and covering some part of the body.

*Menses* (men'sēs). The monthly discharge of females.

*Menstrual* (men'stru-al). Pertaining to the menses; monthly.

*Menstrum* (men'stru-um). A solvent; any liquid used to dissolve solid substances.

*Metastasis* (me-tas'ta-sis). A development of a disease in another part of the body from that in which it started.

*Miasma* (mi-az'ma). The exhalation from swamps and decaying matter.
*Morbid* (mor'bid). Diseased; unsound.
*Mucilage* (mu'ci-lāj). A viscid or ropy fluid substance.
*Mucus* (mu'cus). The sticky, tenacious fluid secreted by the mucous membrane.
*Muscles* (mus'cles). The organs of motion. They constitute the flesh.
*Narcotic* (nar-cot'ic). Producing sleep; a medicine to produce sleep and relieve pain.
*Nausea* (naw'shea). Sickness at the stomach, accompanied with a propensity to vomit.
*Nephritic* (ne-phrit'ic). Pertaining to the kidneys.
*Normal* (nor'mal). Natural, regular.
*Nutritious* (nu-trish'us). Nourishing.
*Oblong* (ob'long). Longer than broad.
*Obtuse* (ob-tūse'). Dull, not acute.
*Omentum* (o-men'tum). The caul or covering of the bowels.
*Ophthalmia* (op-thal'mia). Inflammation of the eyes.
*Oval* (ō'val). Egg-shaped.
*Oxygen* (ox'i-gen). An elementary substance, being one of the constituents of atmospheric air.
*Palpitation* (pal-pi-tā'tion). A beating of the heart; sometimes a violent beating caused by some sudden emotion, as fear, etc.
*Panacea* (pan-a-cē'a). A cure-all; a universal medicine.
*Paralysis* (pa-ral'y-sis). Palsy; a loss of the power of motion in any part of the system.
*Paralytic* (par-a-lyt'ic). Affected with, or inclined to palsy.
*Paroxysm* (par'ox-ism). A fit of any disease; a sudden and temporary aggravation of a disease.
*Pathology* (pa-thol'o-jy). The doctrine of the causes, symptoms, and nature of disease.
*Pectoral* (pek'to-ral). Pertaining to the breast.
*Peduncle* (pe-dunk'l). The stem that supports the flower or fruit of a plant.
*Perennial* (per-en'ni-al). Enduring; continuing from year to year.
*Pericardium* (per-i-kär'di-um). The sack inclosing the heart.
*Permeate* (per'me-āte). To pass through the pores.
*Perspiration* (per-spi-rā'tion). Sweat; insensible evacuation of the fluids through the pores of the skin.
*Petiole* (pet'i-ōle). A leaf-stalk.
*Petecchiæ* (pe-tek'ki-ā). Purple spots on the skin in malignant fevers.
*Pinnate* (pin'nate). A species of compound leaf.
*Plethoric* (pleth'o-rik). Fullness or excess of blood.
*Pleura* (pleu'ra). A thin membrane which lines the inside of the chest and envelops the lungs.
*Pneumonia* (nū-mō'nia). Inflammation of the lungs.
*Polypus* (pol'y-pus). A tumor of the mucous membrane.
*Prolapsus* (prō-lap'sus). A falling down or forward of some part of the body.
*Prophylactic* (prōf-y-lak'tik). A medicine to prevent disease.
*Pubescent* (pu-bes'cent). Covered with down or very short hairs.
*Pulmonary* (pul'mo-nū-ry). Pertaining to or affecting the lungs.
*Pulp.* A soft mass.
*Pungent* (pun'jent). Sharp, piercing, biting, stimulating.
*Purgative* (pur'ga-tive). A medicine that evacuates the bowels.
*Purulent* (pür'u-lent). Consisting of pus, or matter.
*Pus.* The yellowish-white matter in ulcers, wounds, and sores.
*Pustules* (pus'tules). Pimples.
*Putrescent* (pu-tres'cent.) Becoming putrid or rotten.
*Rectum* (rec'tum). The last part of the large intestines.
*Refrigerant* (re-frij'er-ant). A cooling medicine.
*Regimen* (rej'i-men). The regulation of diet in order to preserve or restore health.
*Restorative* (re-stor'a-tive). A medicine for restoring vigor and health.
*Resuscitate* (re-sus'ci-tate). To recover from apparent death.
*Reticulated* (re-tic'u-la-ted). Formed like a net or net-work.
*Rigid* (rij'id). Stiff, unyielding.
*Rubefacient* (ru-be-fā'shent). An application which produces redness of the skin.
*Rubific* (ru-bif'ic). Making red.

*Saccharine* (sak'ka-rin). Sugary; having the qualities of sugar.
*Saliva* (sa-lī'va). Spit or spittle. It serves to moisten the mouth and tongue, and also the food.
*Salivation* (sal-i-vā'tion). The act of increasing the secretion of saliva.
*Sanative* (san'a-tive). Healing or tending to heal.
*Sanguine* (sang'gwin). Abounding in blood, or having the color thereof.
*Scirrhous* (skir'rus). Hard, knotty.
*Scorbutic* (scor-bū'tic). Pertaining to or partaking of the nature of scurvy.
*Scrotum* (scrō'tum). The pouch or bag containing the testicles.
*Secretion* (se-crē'tion). The act of producing from the blood substances different from the blood itself or from any of its constituents, as bile, saliva, mucus, etc., also the substance so secreted.
*Sedative* (sed'a-tive). A quieting, soothing medicine, which allays irritation and soothes pain.
*Sedentary* (sed'en-ta-ry). Accustomed to or requiring much sitting; inactive.
*Seminal* (sem'i-nal). Pertaining to or contained in seed.
*Septic* (sep'tic). Condition produced by inoculation with a pus germ.
*Serous* (sē'rous). Thin, watery, like whey.
*Serum* (sē'rum). The watery parts of the blood, or of milk.
*Sinapism* (sin'a-pism). A mustard plaster.
*Sinew* (sin-ew'). That which unites a muscle to a bone.
*Sialogogue* (si-al'o-gōg). A medicine that promotes the flow of saliva.
*Slough* (sluff). To separate from the sound flesh, as the matter formed on a sore.
*Solution* (so-lū'tion). A liquid in which a solid substance has been dissolved.
*Solvent* (sol'vent). Having the power to dissolve solid substances.
*Spasm.* A violent but brief contraction of the muscles or fibers.
*Spasmodic* (spas-mod'ic). Consisting in or relating to spasms.
*Spleen.* The milt.
*Stimulant* (stim'u-lant). An exciting agent.
*Stomachic* (sto-mak'ik). A cordial for the stomach, exciting its action.
*Stool.* A discharge from the bowels.
*Strangury* (stran'gu-ry). A painful and difficult discharge of the urine.
*Stricture* (stric'ture). A morbid contraction of any passage of the body.
*Styptic* (styp'tic). A medicine which coagulates the blood and stops bleeding.
*Sudorific* (sū-do-rif'ic). A sweat-producing medicine.
*Suppurate* (sup'pu-rāte). To form purulent matter or pus, as a boil.
*Suture* (sū'ture). The peculiar joint uniting the bones of the skull.
*Symptom* (symp'tom). A sign or token; the peculiar marks of any disease.
*Syncope* (sin'ko-pe). A fainting or swooning.
*Syphilitic* (syph-i-lit'ic). Pertaining to the venereal disease, syphilis.
*Syringe* (syr'inj). An instrument for injecting liquids into any of the body cavities.
*Tendon* (ten'don). A bunch of fibers attaching a muscle to a bone.
*Tenesmus* (te-nez'mus). A distressing pressure, as if the bowels must be discharged immediately.
*Tense, or Tension* (ten'sion). Stretched or strained; rigid.
*Tepid* (tep'id). Moderately warm.
*Terminal* (term'i-nal). Forming the end; growing at the end of a branch or stem.
*Ternate* (ter'nāte). Three leaves formed together on a leaf-stalk.
*Tertian* (ter'shan). Occurring every other day, as in some forms of intermittent fever.
*Tincture* (tinc'ture). Medicine dissolved in alcohol or proof spirits.
*Thorax* (thō'rax). The cavity of the chest.
*Tomentose* (tō-men-tose'). Downy, nappy, covered with the finest hairs or down.
*Trachea* (tra'ke-a). The windpipe.
*Translated* (trans-lā'ted). Removed from one place to another.
*Transude* (tran-sude'). To pass through pores or interstices.
*Triennial* (tri-en'ni-al). Continuing three years.
*Tubercle* (tū'ber-kl). A swelling or tumor; the lesion of tuberculosis.
*Tuberous* (tū'ber-ous). Consisting of round, fleshy bodies, as potatoes.
*Tumefaction* (tū-me-fac'tion). The act of swelling or forming a tumor.
*Tumor* (tū'mor). A distension or enlargement of any part of the body; a swelling.
*Tunic* (tū'nic). A membrane that covers or composes some part or organ.
*Typhoid* (ty'phoid). Weak; low; a specific fever.
*Typhus* (ty'phus). A simple continuous fever, attended with exhaustion, weakness of pulse, and frequently strong propensities to sleep.
*Ulcer* (ul'cer). A sore, discharging pus.
*Umbilicus* (um-bil'i-cus). The navel.

*Ureter* (u-rē'ter). The duct or tube through which the urine passes from the kidneys to the bladder.
*Urethra* (u-rē'thra). The canal by which the urine is conducted from the bladder and discharged.
*Urinary* (u'ri-na-ry). Pertaining to urine.
*Urine* (u'rin). A fluid secreted from the kidneys and discharged from the bladder by the urethra.
*Uterus* (u'te-rus). The womb.
*Uvula* (u'vu-la). The small conical body projecting from the middle of the soft palate.
*Vaccinate* (vak'sin-āte). To inoculate with the cow-pox, by inserting the vaccine matter in the skin.
*Vaccine* (vak'sin). Pertaining to cows, or derived from them.
*Vagina* (va-jī'na.) The passage which connects the vulva with the womb.
*Varioloid* (vā'ri-o-loid). A modified form of the small-pox.
*Variolous* (va-rī'o-lous). Pertaining to or denoting the small-pox.
*Venery* (ven'er-y). Sexual intercourse.
*Vermifuge* (verm'i-fuje). A worm-destroyer; a medicine that expels worms.
*Vertigo* (ver'ti-go). Dizziness; swimming of the head.
*Vesication* (ves-i-kā'tion). Raising blisters on the skin.
*Vesicle* (ves'i-cle). A small cavity; a little bladder filled a serous fluid.
*Virus* (vī'rus). Contagious matter.
*Viscera* (vis'ce-ra). The bowels or internal organs of the body.
*Viscid* (vis'cid). Sticky, tenacious, like glue.
*Vitiate* (vish'ē-ate). To injure; to impair; to spoil.
*Volatile* (vol'a-tile). Easily evaporated; substances that waste away on exposure to the atmosphere.
*Vulva* (vul'va). The external parts of the female organs of generation.

# DR. GUNN'S GUIDE TO DIAGNOSIS.

BEING A

## COMPLETE INDEX OF SYMPTOMS.

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DIAGNOSIS is the distinction of one disease from another by its symptoms. In all forms of disease which afflict men, women, and children there are certain signs put forth called *symptoms*, which, if carefully observed, enable one to tell what particular malady or complaint is present. Diagnosis precedes all intelligent measures for the relief of disease, as it is plainly evident that without a correct diagnosis all administering of medicine is but "firing in the dark," and is as likely to miss the mark as to hit it.

### HOW TO USE THE "GUIDE TO DIAGNOSIS."

To use the "Guide," having observed one or more marked symptoms in the case under consideration, you will find them in the Index, which is arranged alphabetically. For instance, supposing you feel a "*sharp pain in one side near the short ribs*," with "*coughing up of matter mixed with blood*," with "*pulse strong and vibrating*"; on referring to the Index you find a reference in each case to a definite page, and on turning to that page you find the disease under consideration is PLEURISY, and you can there read all about it—how to treat and cure it. We see in this that the "Guide" leads unerringly to the detection of the nature and *name* of the disease, and enables us to proceed with confidence in its treatment.

In observing symptoms, attention should always be directed to those parts and functions of the body which give the earliest and most marked indications of disorder. These are the Head, Face, Eyes, Tongue, Throat, Mouth, Breath, Breathing, Teeth, Nose, Breast, Heart, Internal Organs generally, Vomiting, Discharges from the Bowels, Extremities, Pulse, and general appearance of the whole Body.

By a careful and judicious use of this "Guide," in connection with the full descriptions of the various diseases given in the body of the work, every one can be able, in a brief time, to discern *what is the matter* in each case of sickness that may occur, and thus administer the proper treatment with certainty and confidence.

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